Products Finishing

CLEANING
PLATING
POLISHING
FINISHING

OCTOBER • • • 1948

Best Seller

IT'S A WESTINGHOUSE
IT'S A SAGINAW CABINET
. . . WITH AN INTERCHEM FINISH

One of the sales leaders in the highly competitive radio-phonograph market is the Westinghouse One Eighty Six Console pictured above.

Contributing importantly to this sales success is the set's beautiful, Hepplewhite-inspired bowfront cabinet—a masterpiece of cabinet craftsmanship—built by the Saginaw Cabinet Co., Saginaw, Michigan.

The full beauty of the highly figured mahogany veneers used in the cabinet is developed with Interchem Hi-Speed S.F.C. Incorporated in this fast, economical stain-filler combination are permanent, penetrating stains and a new, chemical-resin vehicle which resists shrinking and graying. That's why the ultimate finish is distinguished for its rich, crystal-clear color and sharp definition of the pore.

For detailed information, write Interchemical Corporation, Finishes Division, 57 State St., Newark 1, New Jersey.

Interchem *Finishes*

IC is a trade-mark of Interchemical Corporation.

EZRA A. BLOUNT, Editor

ROBERT I. SHORE
Associate Editor

Consulting and Contributing Editors
H. LEROY BEAVER
ALLEN G. GRAY

GENE J. SCHWARBER
Advertising Manager

NORMAN S. ROGERS
Art Director

WILLIAM HARIG, JR.
Circulation Manager

VERTISING REPRESENTATIVES

RICHARD S. KLINE
GEORGE E. HAY
431 Main St., Cincinnati 2
MAin 0182

G. M. FILLMORE
2 Madison Ave., New York 17
Murray Hill 6-3899

CHARLES H. DEILY, JR.
1 Mattison Ave., Ambler, Pa.
Ambler, Pennsylvania
Ambler 0339

JOHN M. KRINGS
Tribune Tower, Chicago 11
DE-laware 7-5441

E ROBERT W. WALKER CO.
634 S. LaFayette Park Place
Los Angeles 5
DRexel 4388
Post Street, San Francisco 4
SUtter 1-5568

MEMBER

CCA

Published monthly and copyrighted (1948) by

ARDNER PUBLICATIONS, Inc.
1 Main St., Cincinnati 2, Ohio

ward Campbell .....President
n M. Krings.....Vice President
anville M. Fillmore..Vice President
argaret L. Gardner.....Secretary
chard S. Kline.....Treasurer

Printed in U. S. A.

EAST ENGR. LIBRARY
TS
200
P96

Products finishing Contents

Volume 13 **OCTOBER, 1948** **Number 1**

Editorial 19

Streamlined Bumper Production..... 20
By Ezra A. Blount

Use Solvents Safely 34

Barrel Finishing of Metal Products
By H. Leroy Beaver
Part 25—Factors in the Barrel Finishing of Stainless Steels 40

Spray Booth Coatings 56
By Rollin H. Wampler

30th Annual Metal Congress and Exposition..... 64

26th Annual Meeting, Federation of Paint and Varnish Production Clubs 68

Finishing Clinic
By Dr. Allen G. Gray
—Significance of Stress in Electroplated Nickel..... 78
—Material Control in Organic Finishing..... 88
—Preventing Excessive Trivalent Chromium Formation in Chromium Plating 90
—Properties of Anodic Coatings on Aluminum..... 92

News of the Industry..... 98

Finishes That Aid in Appearance and Utility.....116

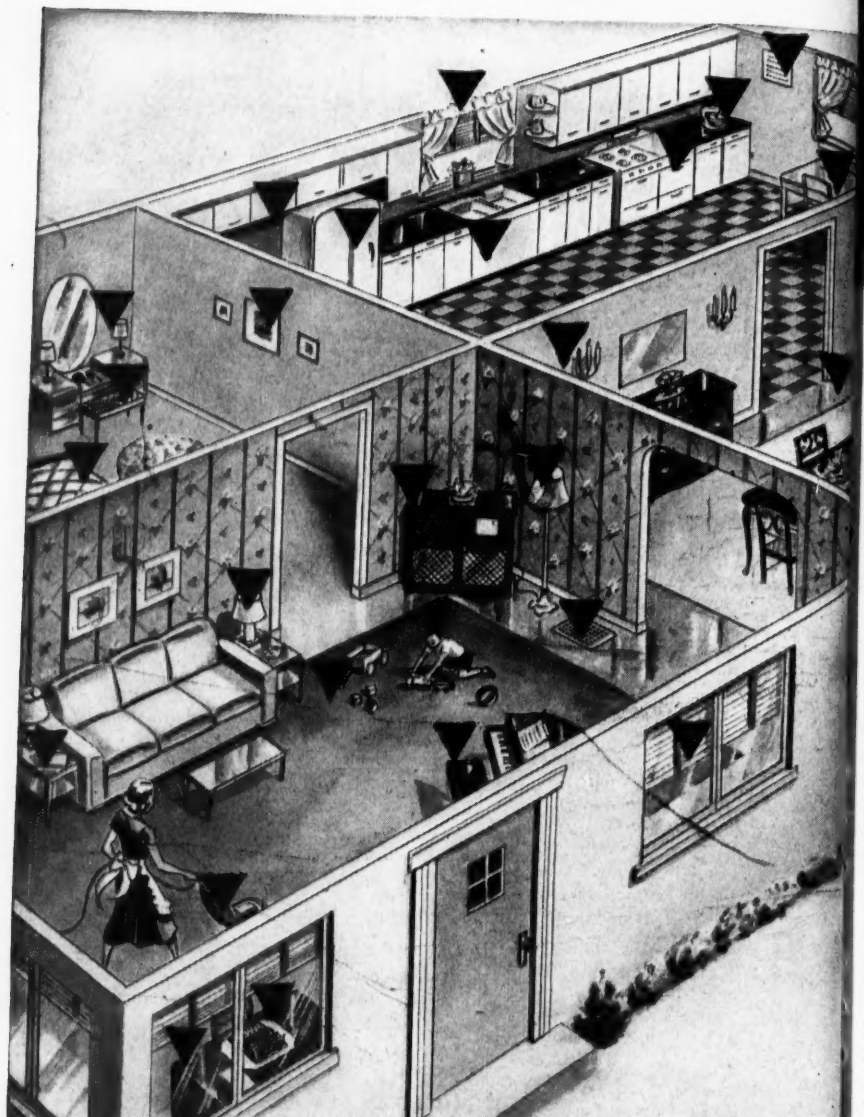
New Equipment, Materials, Processes.....118

The Finishing Touch 144

Opportunity Section 145

Catalog Library 146

Index to Advertisements 148



Products Finishing

Interpretation --- Vital to Corrosion Testing

It is generally agreed that most metals of industrial importance, notably iron and steel, require some type of protection against corrosion. Most corrosion engineers will agree that the character and extent of the necessary protective measures depend upon the nature of the metal, and the environment to which the metal is exposed. However, in spite of advances in the understanding of the nature of corrosion and the techniques in testing for corrosion, there are still far too many instances where materials applied on the basis of preliminary corrosion tests fail in service.

This does not mean that our knowledge of corrosion theory and corrosion processes is grossly inadequate, nor does it mean that some much improved methods and apparatus for corrosion testing must be devised. It does mean, however, that the corrosion investigator must be willing to make whatever extraordinary efforts may be required to see that the corrosion tests are carried out under conditions that come as close as possible to duplicating the conditions of the proposed use. Also, there must be an element of certainty to the effect that the methods of measuring corrosion damage do properly and completely appraise the corrosion resistance of the materials tested.

First of all, this means that a real effort must be made to evaluate the conditions of the proposed application so that they can be duplicated in the laboratory. Corrosion tests may be carried out in the laboratory or in the field under the conditions which are met in service. It is usually possible to exercise greater control in laboratory tests than in field exposures, and consequently most studies having to do with the mechanism of the process and the influence of various factors on the rate of corrosion have been carried on in laboratories. In many cases laboratory studies are helpful in explaining the results which occur in the field.

Thus, there is generally always some good reason why a corrosion test has failed to provide the proper answer. Indications are that the common defects of corrosion tests are such that they may be corrected by more care in appraising the problem, executing the tests, and interpreting the results.

Full automatic polishing, conveyorized plating and handling, and plant cleanliness characterize bumper production in the plant of the Bumper Division, The Electric Auto-Lite Company, Sharonville, Ohio.

PF FEATURE

The Sharonville, Ohio plant of The Electric Auto-Lite Company, Bumper Division, can build almost any bumper that automobile designers can imagine. In a plant constructed in 1945 and and '46 containing 250,000 square feet of floor space, bumpers are now being produced for Plymouth, Dodge, Hudson, Studebaker and Kaiser-Frazer at a rate of 8,000 per day with an ultimate potential of 12,000 per day.

The one-story brick and steel building in which manufacturing operations are conducted has been so designed that streamlined bumper manufacturing can be readily accomplished. From the ramps and storage areas on one side of the building designated for the receiving of steel stock to the long loading dock on another side of the building, no detail in efficient arrangement and convenient location of equipment has been overlooked by Auto-Lite process engineers.

Polishing and buffing operations are traditionally and characteristically dust-producing operations. However, the dust problem has been so complete-

Bumper Production

By EZRA A. BLOUNT

ly solved in this plant that it is possible to locate an attractive plant cafeteria in the same building with the polishing and buffing operations without the necessity of partitions or separating walls of any kind. The special ventilating system which makes possible the high degree of plant cleanliness removes approximately 250,000 cubic feet of air per minute from the plant, an air removing capacity sufficient to change all the air in the plant every 13 minutes. Specially designed intake air heaters warm the incoming air during the cooler months so as to maintain healthful conditions in the plant. The exhaust or ventilating system moves the air across the plant from south to north and all the dust collectors and exhaust fan units are located on the north side of the plant. This is a refreshing change from plant design sometimes encountered wherein the main emphasis is upon the location of manufacturing operations, after which dust collecting systems are scattered at random where the convenience of the moment seems to dictate.

It is not generally realized that an automobile bumper is an assembly

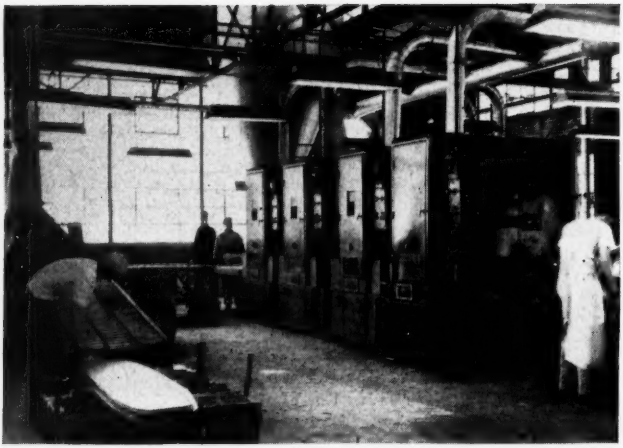


Fig. 1—Pre-polishing operation. Note washed, polished blanks emerging from mechanized washer at left.

supports are transported to the loading dock for shipment.

Steel sheets from which the attractively designed bumpers are to be fabricated are received from the steel mill in blanks of approximately the proper shape. This reduces to a minimum the scrap steel which must be trimmed from the bumper after forming and returned to the steel mill.

consisting of a spring-steel bumper support to absorb any shocks encountered, and a highly polished chrome plated bumper face, or bumper proper, to add to the attractive appearance of the completed automobile. In the manufacture of bumper supports at the Electric Auto-Lite plant, machines edge-bend and pierce the units, after which they are heated and formed. Mechanical oil quenching and drawing operations restore tensile strength lost in heating for forming. If the bumper supports require riveting of two subassemblies, that operation is performed at this point in the process, after which the completed bumper support is pickled and Bonderized in an automatic Meeker machine specially designed for the purpose. Bumper supports may be unloaded directly from the Meeker machine onto a transport conveyor which carries them through a paint dipping tank and then through an infra-red drying oven containing more than 1,800 250-watt lamps. The Becker black enamel in which the bumper supports are dipped dries readily in the infra-red oven at a temperature of 350 deg. F. and in the 11-minute drying cycle specified for this operation. Completed bumper

The first operation in the manufacturing process is that of pre-polishing. This operation is conducted on four Hill-Acme two-roll vertical abrasive belt polishing machines, shown in Fig. 1, in which abrasive belts containing successively finer grades of emery perform the first polishing operation on the bumper blank. The blank passes over rolls through each of the four polishing operations. The first two polishing operations are accomplished by abrasive belts containing 80 emery. The third and fourth stages are accomplished with abrasive belts containing either 90, 120 or 150 emery, depending upon the quality of the steel surface experienced. The pre-polishing operation accomplishes several purposes. It makes possible the rejection of a steel sheet containing major defects before an appreciable amount of work has been expended on the sheet. Then, too, the pre-polishing operation makes possible the use of finer abrasives and fewer steps in the polishing operations proper, which follow the

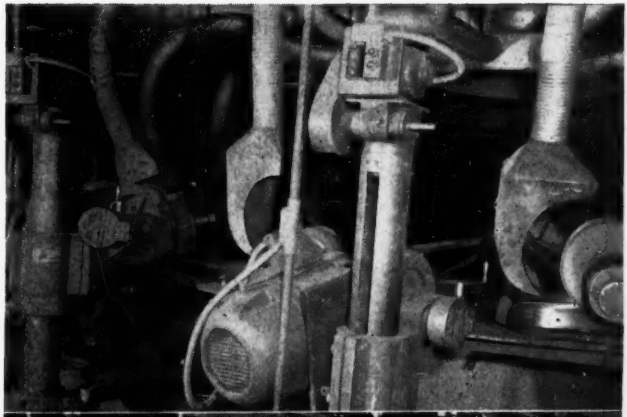


Fig. 2 — A close-up view of the rotary bumper polisher. Bumpers are moved around in merry-go-round fashion as polishing wheels, each mounted separately and for a set purpose, correctly polish them. Rotary equipment is synchronized with straight-line equipment for uniformity.

Fig. 3 — Bumpers, hanging on an overhead conveyor, are moved to the straight line polishing machine, in the rear. Note simple conveyor hanger so designed that it will carry any style bumper being manufactured.

Fig. 4 — Ends of the automobile bumpers are being polished on this machine with wheels headed with varying grain sizes of emery.

Fig. 5—A view of the wheel-heading operation, wheel transport conveyor, overhead drying oven, and controlled - atmosphere storage room.

forming and trimming operations. This makes possible a smoother surface containing finer scratches so that a higher quality bumper containing fewer visible scratches is produced by the plating and subsequent buffing operations.

Immediately following the pre-polishing operation, bumper blanks are fed through a two-stage pressure washer containing from ¾ to 1 oz./gal. total alkalinity. This process leaves a thin film of alkali on the surface of the sheet so that the pre-polished sheet may be stored for a considerable period of time, as necessitated by varying manufacturing schedules, without rusting.

Pre-polished blanks are treated with drawing compound and dried at 200 deg. F., after which they are cold formed in one of several 700-ton hydraulic presses or a 1,000-ton mechanical press. It has been found to be more efficient from a steel utilization and handling standpoint to form the bumpers in pairs, after which they are cut apart and trimmed. Piercing, forming, and blanking are accomplished in from two to seven operations, depending upon the type of bumper being processed. The presses used operate at the rate of ten strokes per minute.

Formed bumpers are hung on the transport conveyor which travels through the polishing room, making contact with the various polishing operations in turn. The bumpers are polished first on a rotary automatic polishing machine, a view of which is shown in Fig. 2, where polishing wheels containing 120 or 150 emery smooth the surface initially, after which hard buffs containing 180 emery cake complete the polishing process on the particular area of the bumper in question. It should be explained that Auto-Lite engineers have designed the polishing process and machinery by first separating the surface of the bumper into five areas; namely, face, flange, groove, and the two ends. The various automatic polishing machines polish successively one or more of these areas in the proper order.

After bumpers are processed through the rotary polishing machine they are loaded on the transport conveyor and carried to one of the Divine polishing machines where a different area is polished in a manner quite similar to that described for the rotary machine.

After processing through the Divine polishing machine, the bumper is transported to the loading end of one

of the straight line polishing machines which is used to polish the two ends of each bumper (see Figs. 3 and 4). When this polishing cycle is completed, bumpers are inspected and those which do not pass inspection are retouched by hand or reprocessed through one of the mechanical polishing cycles as the final inspector decides. Completed, accepted bumpers are transferred to another conveyor which carries them through a two-stage pressure washer containing 1-2 oz./gal. Wyandotte 38 cleaner in the first stage and 1 oz./gal. soda ash in the second stage, and delivers them to the nickel plating area where they are transferred to the nickel plating conveyor or stored as necessary. The washing operation leaves an alkaline film on the polished bumper which prevents rust during such storage as may be necessary.

An interesting feature of the polishing department is the wheel room, pictured in Fig. 5, where the polishing wheels are headed with the proper grade of emery and stored for use as required. Three coating stands are available for coating the wheels with the proper adhesive, after which the wheels are rolled mechanically in the correct grade of emery. Wheels coated with the emery are hung on a transport conveyor and conducted through a drying oven which performs the preliminary drying operation. Wheels are unloaded from this conveyor and stored for 24 hours in a storage room where temperature and humidity are controlled at predetermined values. Since bumpers for several popular makes of cars are manufactured, wheels of various sizes and shapes are required for the several automatic polishing operations. In the storage room the wheels are segregated both as to the type of bumper for which they must be used and as to the grade of emery which they contain.

Plating racks for the nickel plating cycle have been so designed that no

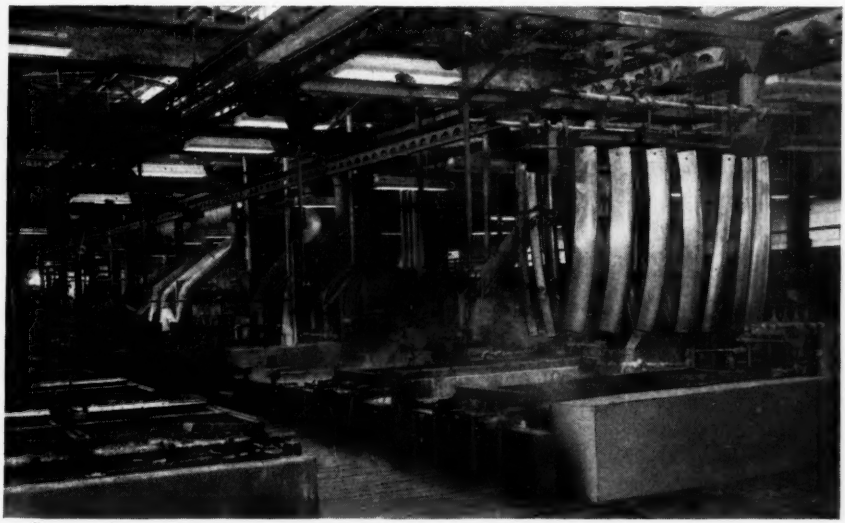


Fig. 6—A view of the nickel plating area in the Electric Auto-Lite Company's Sharonville, Ohio, plant. A rack of polished bumpers is suspended over an alkali cleaning tank, which is the first step in the nickel plating cycle.

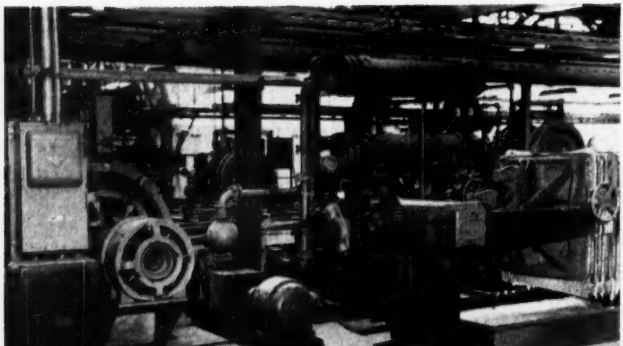


Fig. 8 — One of the 5,000-ampere generators (left), a Duriron pump and heat exchanger (center), and solution filter (right) used in the nickel plating operation.

matter what model of bumper is being plated, the rack will contain 50 square feet of plating surface. This standard having been established, the plating racks, plating tanks, plating power supply, or in a word, the entire plating operation could be designed, specified and installed.

The bumpers are racked on a double set of plating racks containing from 10 to 12 bumpers, depending upon the model being processed. The set of racks is transported on an overhead tramrail conveyor to the first step in the plating process which is the electrocleaner. Figure 6 shows a rack of bumpers ready for cleaning.

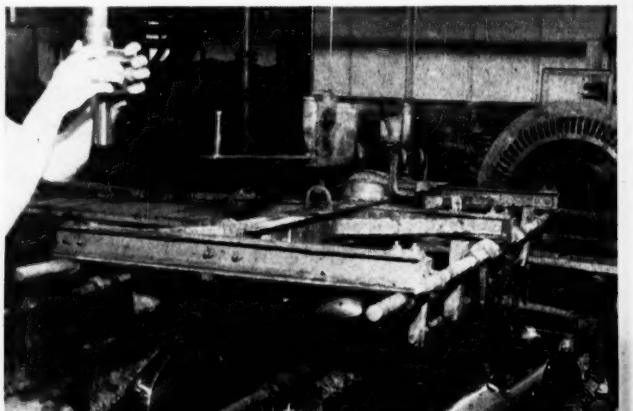
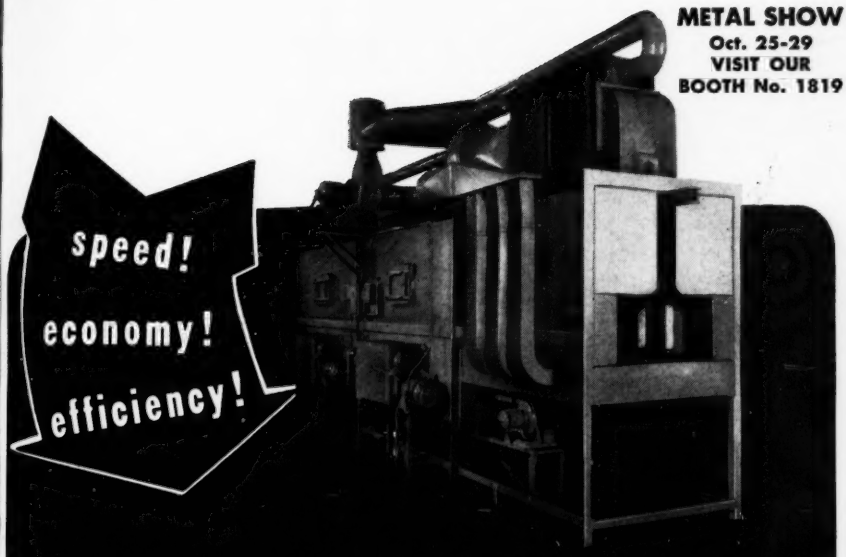


Fig. 7 — A close-up view of a rack of cleaned bumpers entering a nickel plating unit where a 0.0015-inch thickness of nickel is deposited.

Time cycles in the various solutions comprising the nickel plating cycle dictate that multiple tanks of the various solutions are necessary in order that production will flow smoothly through the entire unit. To balance varying time cycles, two cleaner tanks, two anodic etch tanks (one in use, one standby), two copper strike tanks, and three nickel plating tanks have been installed. Each nickel plating tank consists of four plating cells so that a total of 12 nickel plating units is available. Figure 7 shows a rack of bumpers being lowered into a nickel

METAL SHOW
Oct. 25-29
VISIT OUR
BOOTH No. 1819



WHY BE SATISFIED WITH LESS?

This A-F Metal Products Cleaning Machine was designed to be "built into" a completely co-ordinated conveyorized production line of a leading midwest manufacturer.

By taking out a section of trolley track and connecting to the track which is welded throughout the length of the machine it became an integral part of production flow. Baskets of small metal products are carried through washing, rinsing, blow off and drying operations on the overhead trolley conveyor.

If *you* have a difficult metal product cleaning problem that one of our "standard" machines will not solve why not discuss your problem with A-F engineers? A discussion places you under no obligation. And remember the best Metal Products Cleaning Equipment for *your* use quite often costs you less in the end. Write for illustrated literature—today!

THE ALVEY-FERGUSON COMPANY

632 Disney St. ***Established 1901*** **Cincinnati 9, Ohio**

Offices or Representatives in Principal Cities—Coast-to-Coast

CONVEYING A-F MACHINERY **Alvey-Ferguson**

Fig. 10—A bumper is inspected and removed from a Divine automatic buffing machine at the Bumper Division of The Electric Auto-Lite Company. Wheels are arranged in varying positions to completely cover several points on a widely ranging bumper cross-section.

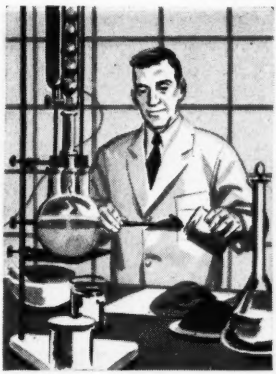
plating unit. All processing tanks in this unit except the nickel plating tanks are approximately 92 inches long x 6 feet wide x 6 feet deep. The rubber-lined nickel plating tanks are 92 inches wide x 6 feet deep, sloping through the 26-foot length to a depth of 6½ feet, which is further increased by a drain sump. Each plating unit contains sufficient anodes to provide from 100 to 120 square feet of anode surface. Power for the nickel plating unit is furnished by six 5,000 ampere generators.

The nickel solution is circulated through a Duriron heat exchanger to make possible the maintenance of a predetermined temperature by means of a Duriron pump, and the necessary piping and distribution system. A plate type filter is included in the system so that the solution is filtered constantly and the filtered solution is delivered back to the tank at the bottom, directly below the bumpers being plated. The circulation is approximately 150 g.p.m., which is equivalent to an agitation of 3 f.p.m. past the cathode. A view of pump, heat exchanger, and filter is shown in Fig. 8.

Fig. 9 — Illustration shows a rack of nickel plated bumpers in position to be lowered into a cold water dip-and-spray rinse. Final hot water rinse tank appears in the foreground.

Udylite Research

. . . ever at work, in your service



Research, at Udylite, is as continuing as the clock. Over the years, the search for the "new and better way" has been as scheduled and definite an endeavor as our manufacture of plating machines and supplies.

From this have come such time-saving, quality-improving, cost-cutting developments as the famed Udylite Bright Nickel Process (which increases plating speed as high as 50%) . . . the Udylite Cadmium Process (the foundation of our company and first discovered by Marvin Udy) . . . and many other important plating process improvements.

Equally important is the availability of Udylite's unmatched laboratory facilities and expert technical staff to help you quickly solve troublesome metal finishing problems.

Our electrochemical engineers will recommend the type of solution to be used, the best operating cycle and the ideal operating conditions for best results.

Our technical field service engineers will supervise the preparation and purification of solutions . . . assist in starting and adjusting processes. Udylite engineers will also instruct your personnel in the proper operation.

In our headquarters control laboratory, your solutions will be tested without cost. Our complete Pilot Plant in Detroit makes possible thorough pre-testing of processes. Our engineers will design an entire plant for you, with accent on maximum efficiency.

All this is a part of Udylite Research . . . *continuous* research that is available at all times to Udylite customers. For better plating—faster—at lower cost—and with maximum profit to you—always depend upon Udylite.

Pioneer of a better way in plating

THE Udylite CORPORATION

Detroit 11, Mich. • Offices in Principal Cities

After the nickel plating operation, which coats the bumpers with approximately 0.0015-inch thickness of nickel, the bumpers are given a hot water rinse, as shown in Fig. 9, unracked, and transferred to the buffing department by transport conveyor.

In the buffing department bumpers are processed through one of two straight line buffing machines when the design of the bumper is such that this operation can be performed mechanically. Since this operation buffs the two ends of the bumpers, it is limited in application to those bumpers whose ends are so shaped that they can be processed without the danger of damage to the equipment. Bumpers are returned to the transport conveyor and carried to one of two rotary buffing machines where the face or flange of the bumper is buffed in an operation quite similar to the polishing operation previously performed on the bumper in the rotary polishing machine. Leaving the rotary buffing machine, the bumpers are processed through one of two Divine buffing machines (see Fig. 10), after which the ends of the bumpers are touched up by hand if necessary. This operation comprises about the only hand operation in the entire plant and is only required to secure a high polish on the bumper tips which cannot be buffed satisfactorily by mechanical methods.

Returned to the transport conveyor, the bumpers are carried to a transfer point where they are transferred to the chrome plating cycle transport conveyor. As in the case of the nickel plating cycle, here the bumpers are again racked on large double racks suspended from a power-operated tramrail overhead conveyor and here again the number of bumpers assembled on one rack is such that 50 square feet of plating surface is made available. A view of the chrome plating unit is shown in Fig. 11.

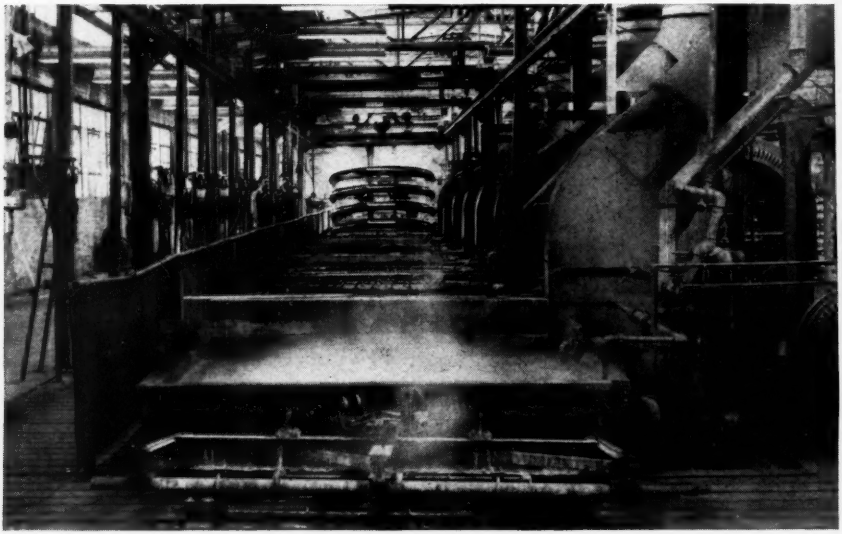
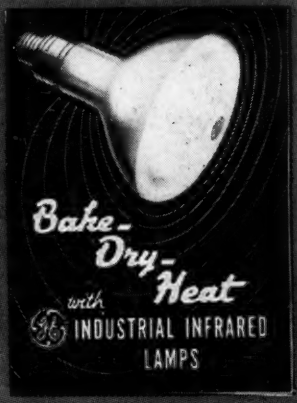


Fig. 11—A view of the chromium plating section showing a rack of bumpers suspended above one of the processing tanks. Fume exhaust ducts are shown at the right, and generators at the extreme right. Final hot water rinse is shown in foreground.

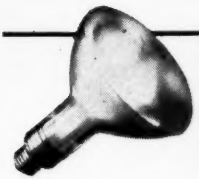
G-E's free bulletin



Shows how you can speed production, cut costs!

IF there's a heating, baking, drying or de-hydrating problem in your plant, you should get the full story of G-E infrared lamps. In scores of industries infrared is providing a quick, economical, easily installed means of speeding production, improving product quality and cutting costs. Applications range all the way from drying paints and enamels to thermo-setting cement, curing hides and pre-heating metals.

This free bulletin gives you all the information on G-E infrared lamps—shows their use and the many types available. It may suggest an idea that will save you thousands of dollars. Remember, whatever infrared lamps you need for most efficient application, General Electric makes them all! Call your nearby G-E Lamp Office, or write to General Electric, Nela Park, Division 166-PF10, Cleveland 12, Ohio.



G-E LAMPS
GENERAL ELECTRIC

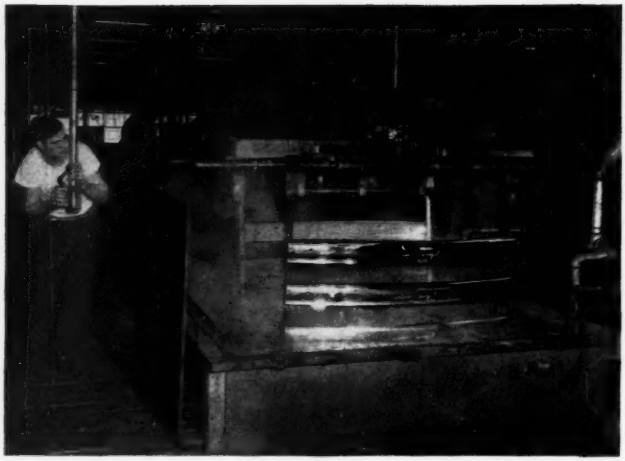


Fig. 12 — Chromium plated bumpers are given a final hot water rinse prior to shipping from the Bumper Division of The Electric Auto-Lite Company at Sharonville, Ohio. The water in which the finished bumpers have been dipped is so hot that drying is practically instantaneous.

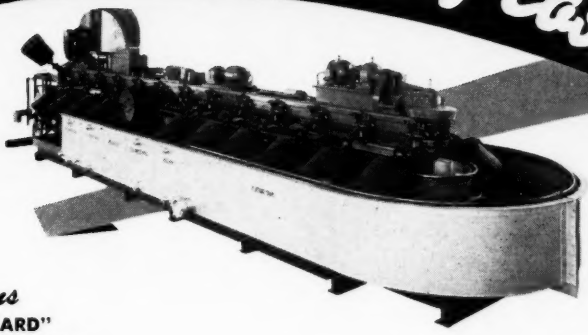
To compensate for varying processing time cycles, three cleaning tanks and five chromium plating tanks are provided in the chromium plating unit. These are in addition to the rinse tanks and acid dips. Each tank has a capacity of approximately 2,000 gallons. The chromium plating tanks are steel, lead lined, and then brick lined with acidproof brick. Heat is supplied to the solutions through lead coils. J. C. Miller lead anodes are used in all the chromium plating tanks. Power for the chromium plating units is supplied by five 7,500-ampere 12-volt generators. Adequate fume collecting and discharging equipment is installed throughout the chromium plating unit, as well as at all other points in the plant where processing fumes are encountered.

After bumpers leave the last operation in the chromium plating cycle, as shown in Fig. 12, they are inspected, touched up on a buff if necessary, and stored or packed for shipment. Some bumper specifications require that the back of the bumper be sprayed with aluminum paint. A short conveyor leading through a spray booth is conveniently located at the end of the chromium plating cycle so that bumpers requiring this operation may be processed efficiently. After bumpers complete the chrome plating cycle they are then located conveniently near the loading dock so that manual handling is reduced to a minimum.

By reference to Fig. 3 it can be noted that a very simple basic conveyor hanger is used to transport bumpers from one operation to another. The simple conveyor hanger is so designed that it can be used for all of the various models of bumpers processed. Conveyor hanger design is a fundamental consideration for every plant and every product and, in the case of the Auto-Lite Company's Bumper Division, that design is quite simple yet most efficient.

To maintain quality standards and prevent defective plating, the various solutions concerned must be analyzed frequently on a regular basis. Cleaners are tested once each shift for free alkalinity. Acids are tested for concentration with a Baumé hydrometer once per shift. The copper plating solutions are analyzed once per shift for cyanide and caustic soda, and once per week for copper and sodium carbonate. The pH of the nickel solution is checked twice per shift, the XXX-D content determined once per shift, and the chloride and Perflo contents checked once per day. Nickel and boric acid are determined once per week. Additional

How to Cut Plating Costs



Stevens
"STANDARD"
FULL AUTOMATIC
RETURN TYPE SMALL
PARTS PLATING MACHINE

Many plants throughout the country are materially cutting both time and labor costs through the installation of this machine.

It will pay you to investigate its possibilities as related to your own operations in the plating of small parts.

To meet today's needs, we have developed another proven leader for the plating industry . . . our

STANDARD SMALL PARTS PLATING MACHINE

It provides a complete processing cycle of cleaning, acid, strike, plating, rinses, bright dip and drying.

Work to be processed is manually or automatically loaded into the basket . . . and returned to practically the same point and automatically unloaded . . . permitting one operator to easily handle the entire operation.

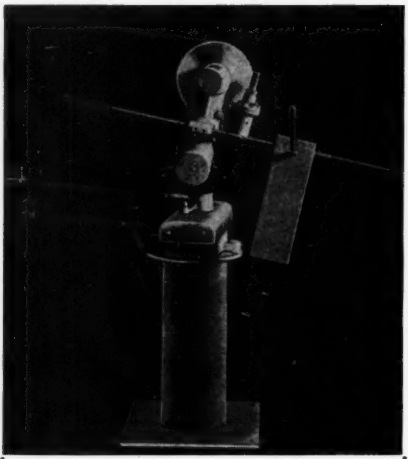
Plating time can be increased or decreased by finger tip adjustment of timer control. Plating baskets rotate continuously in all operations.

Bright dip provided with independent variable treatment time mechanism.

Your inquiry on any type of plating equipment will receive careful consideration and study of individual requirements—at no cost or obligation.

FREDERIC B. STEVENS INCORPORATED
DETROIT 16, MICHIGAN

- NEW ENGLAND 186-192 Brewery St., New Haven, Conn.
- NEW YORK and PENNSYLVANIA 93 Stone St., Buffalo, N. Y.
- INDIANA Hoosier Supply Co., 36 Shelby St., Indianapolis, Ind.
- CANADA FREDERIC B. STEVENS OF CANADA, LIMITED
  - 1262 McDougall St., Windsor, Ontario
  - 41 Dover Court, Toronto, Ontario



NIEDERST
Back Stand Idler

—for faster, better, smoother polishing

Backed by eighteen years of experience in the field of abrasive belt polishing, the Niederst Back Stand Idler offers you the utmost in versatility, dependability and productiveness. Use it with your lathe—to turn out superbly polished pieces faster and at less cost!

Today—write for the facts detailing innovations which have earned the Niederst Back Stand Idler the reputation as

"The World's Workingest Idler"!

Nationally Distributed by Matchless Metal Polish Co.

NIEDERST COMPANY
3506 S. MICHIGAN AVE., CHICAGO 15, ILL.

data assisting in nickel solution control are obtained by plating panels daily in the Hull test cell and studying the deposits. Chromium plating solutions are analyzed once per shift for chromic acid and twice a week for sulphate.

Quality of the finished bumpers is ensured by tests of nickel thickness and resistance of a finished bumper to the corrosive action of the salt spray. Nickel thickness is tested daily with an Aminco-Brenner Magne-gage and twice a week with a microscope. One bumper from each 1,200 is tested in a salt spray. To maintain specified product standards and to improve both manufacturing processes and product quality is the goal of the well-equipped chemical laboratory at Auto-Lite's Sharonville plant.

Use Solvents Safely

ACCIDENT records suggest that trouble with solvents arises more frequently where these chemicals are used only occasionally or in comparatively small quantities than where large quantities of solvent are regularly employed. The reason seems to be unfamiliarity on the part of the small user with the need for precautions or with the measures which should be taken.

Because even a single instance of careless or improper handling of a solvent during operations such as cleaning, degreasing or thinning may under certain circumstances result in a fire or sickness, or both, depending upon the solvent used, the following points should be checked:

1. What does the label say?
   Many solvent containers are labeled with recommendations for safe use. If the label has no such information, the manufacturer or packager may be of assistance in providing safe handling data.

Switching to 3M Abrasive Belts brought a surprise benefit to this Pennsylvania industrial chrome processor. Besides the expected reduction in grinding costs (more than 50%) the new system produced an amazing change in worker morale.

Operators found it easy to turn out fast, smooth jobs with less fatigue.

The smoothness and perfect balance of 3M Abrasive Belts and Contact Rolls permitted use of abdomen pressure. On this particular operation it was possible to eliminate the goggles and respirators with safety. As a result, labor turnover dropped from 27% to 9%.

Your 3M Distributor can tell you more about 3M Abrasive Belts, or send coupon for full details.

3M
ABRASIVE BELTS

ANOTHER 3M COMPANY PRODUCT

Made in U. S. A. by
MINNESOTA MINING & MFG. CO.
Saint Paul 6, Minn.

General Export: DUREX ABRASIVES CORP., *63 Wall St., New York 5, N. Y.*
In Canada: CANADIAN DUREX ABRASIVES LTD. *Brantford, Ontario*

PF-1048

Please send free copy of your booklet "Step Up Production."

Name.....

Address.....

City.....*Zone*...*State*.....

When smaller cans or bottles are filled in the shop from a larger container, the smaller containers should also be clearly labeled.

2. Are solvent containers always kept closed?
   Self-closing safety cans are useful when containers must be opened frequently. Open pails are unsafe for storing or carrying solvents.
3. Is there plenty of ventilation whenever a solvent is used?
   Any solvent operation, unless it is carried out in entirely enclosed equipment, may give off dangerous quantities of vapor. Depending upon the operation, open windows, mechanical ventilation or gas masks may be the best way to protect workers from inhaling the vapor. Where a solvent is used frequently, even in small quantities, mechanical ventilation is probably essential. Industrial hygiene services of local and state health or labor departments are glad to advise on ventilation.
4. Is there a noticeable odor of solvent in the workroom?
   The absence of solvent odors does not always indicate that the air is safe. However, a noticeable odor generally means that there is too much vapor in the air, even for fairly short operations.
5. Are workers' hands being soaked in solvent?
   Whenever solvent may wet the skin frequently or for considerable periods of time, protective gloves of a solvent-resistant material should be worn to prevent dermatitis.
6. Are workers trained to be good "housekeepers"?
   Solvents should be handled to avoid spilling, and solvent-soaked waste and rags should be disposed of in airtight containers.
7. Are solvent operations well supervised?
   The plant manager or owner must often be his own safety director, to make certain that workers handle the solvent according to instructions and use gloves, gas masks or other safety equipment provided.
8. Are the men who work with solvents in good health?
   Those who work with solvents should report stomach upset, dizziness or other illness to a physician, since these may be symptoms of exposure to solvent vapors. Alcoholics and those suffering from certain organic illnesses should not work with solvents. In many companies, preplacement examinations are given to employees before they are assigned to solvent operations.

—SAFETY RESEARCH INSTITUTE.

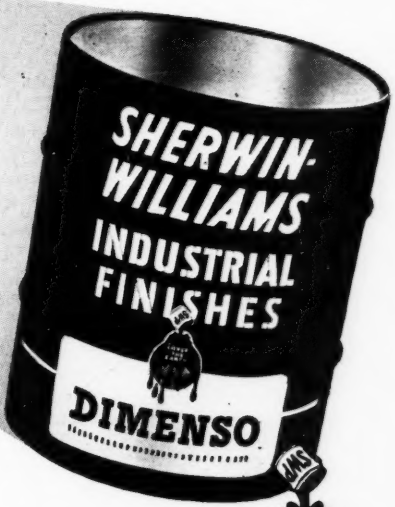
HOLLAND SAYS:
DEBURRING WILL CUT GRINDING COSTS
Motor Driven Tilting Tumbling Barrels for cleaning, polishing, grinding, deburring, sanding, burnishing and various other applications.
Wide selection of metal finishing equipment on hand. Write for FREE folder "M."
J. HOLLAND & SONS, INC.
MANUFACTURERS • DEALERS
276 SOUTH NINTH ST. • BROOKLYN, N. Y.

MENSO

PATENTED

LACQUER!

FINISHES in 2 colors! 1 operation! 1/3 less cost!

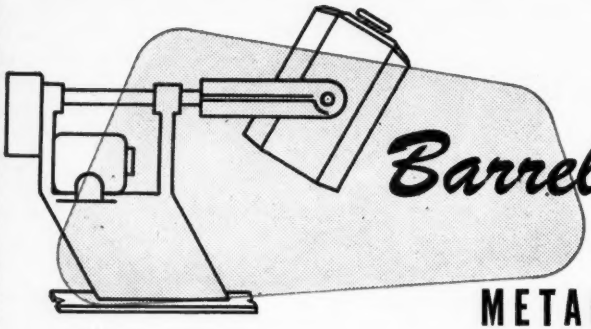


of realistic depth. You spray two colors simultaneously, from a single gun at one-third less cost.

You'll want full details on this amazing new lacquer. You'll want to know, too, about the standard baking line of DIMENSO finishes. Just mail the coupon for complete information. The Sherwin-Williams Co., Industrial Division, Cleveland 1, Ohio. (Export Division, Newark, N. J.)

Another Product of Sherwin-Williams Industrial Research

INDUSTRIAL FINISHES



Barrel Finishing of METAL PRODUCTS

Part 25—Factors in the Barrel Finishing of Stainless Steels

By H. LEROY BEAVER
Barrel Finishing Consultant
Lansdale, Pennsylvania

THERE has been so much interest of late in the factors relative to the barrel finishing of stainless steel that some comment seems to be in order at this time. We have, particularly in the past three months, received a host of inquiries from manufacturers of stainless steel stampings and other small parts, asking whether in our research experiments we had developed anything in the way of acceptable materials and methods for "finishing" this material.

Now when the term "finishing" is used, we find that it has two imports. On the one hand there are those who designate as a "finish," the process of smoothing or burring stampings and like parts, while on the other hand there is a separate and distinct group to whom a "finish," as they express it, does not mean either smoothing of surface areas or the removal of burrs or "wire edges." What they are really referring to is a quite different thing and would better be described as "color." In barrel finishing, "finish" and "color" are not by any means synonymous terms and they really constitute far more than what might be called a distinction without a difference.

We are frequently asked, "What materials and method shall we use to barrel finish our stainless steel parts?" This brings us to something we would like to discuss with you.

When most people talk of stainless steel they consider only one, or at the most, two grades. However, there are approximately thirty standard grades of stainless steel and modifications of these standard grades further increase the total. Basically there are three different types of stainless steel; the martensitic—12 per cent and 17 per cent chromium steels with high carbon, hardenable through heat treating; the ferritic—the straight chromium containing 17 per cent or more of chromium, not hardenable by heat treatment; the chromium nickel stainless steels consisting of 17 per cent chromium and 6 per cent nickel as well as other concentrations up to 25 per

IT'S A . . .

"Black Beauty"

JETAL

The Fastest Black Finish for your Irons and Steels!

Yes, Jetal Black is *fast* — takes only 5 minutes to apply! The Jetal Process is not only fast — it's the *finest* black finish for your irons and steels — a tough black oxide coating that is long lasting and adaptable.

Here are the features that make Jetal Black a winner every time.

1. **JETAL** is the original black finish.
2. **JETAL** lasts longer.
3. **JETAL** costs less.
4. **JETAL** is a tough, *adaptable* black oxide coating.
5. **JETAL** may be resistance or spot welded.
6. **JETAL** stays black — deep and solid.
7. **JETAL** won't chip, break or peel.
8. **JETAL** resists wear and penetration better than any black on the market.
9. **JETAL** gives longer life to cutting tools.
10. **JETAL** goes on easily by immersion in bulk, baskets or barrels.
11. **JETAL** forms fine base for laquer, enamel, or japan.
12. **JETAL** causes *no* dimensional change after application.

Take advantage of these outstanding Jetal features! Alrose will be glad to "jetalize" samples for you with no obligation. Or let Alrose demonstrate the Jetal Process free of charge in your plant.

COMBAT RUST with JETOIL 1A

When Jetoil 1A is added as a supplemental oil film for protection during assembly, inspection, storage or in service, rust does not appear until after more than 50 hours of salt spray testing.

OTHER ALROSE FINISHES

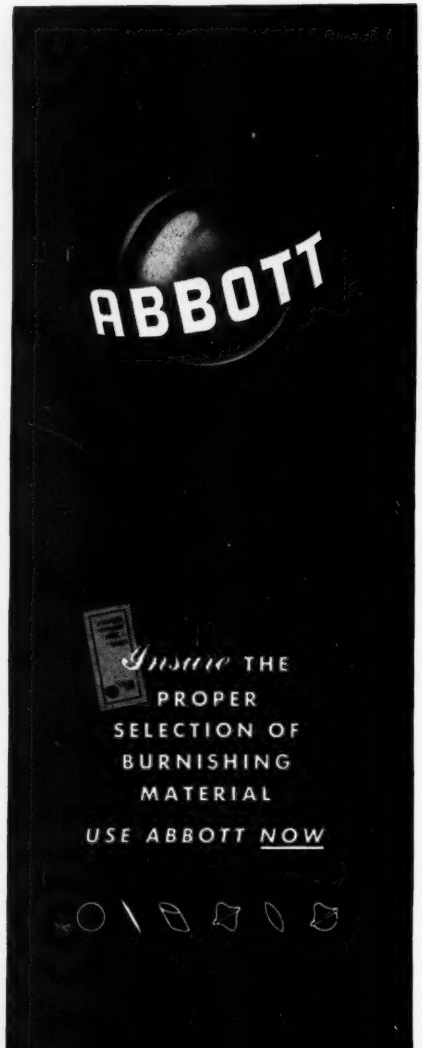
FOR BLACK BEAUTY — Oxidine B — for blackening copper and brass.
Oxidine Z — for blackening zinc.

FOR WHITE BEAUTY — Bon White — an immersion tin finish for copper, brass — exceptionally bright white — ideal soldering base.
White Brass — plates a tertiary alloy of copper, zinc and tin, giving brilliant, non-tarnishing, long-wearing surface over all base or precious metals.

ALROSE CHEMICAL COMPANY

Manufacturing and Research Chemists

PROVIDENCE, RHODE ISLAND • WILLIAMS 3000

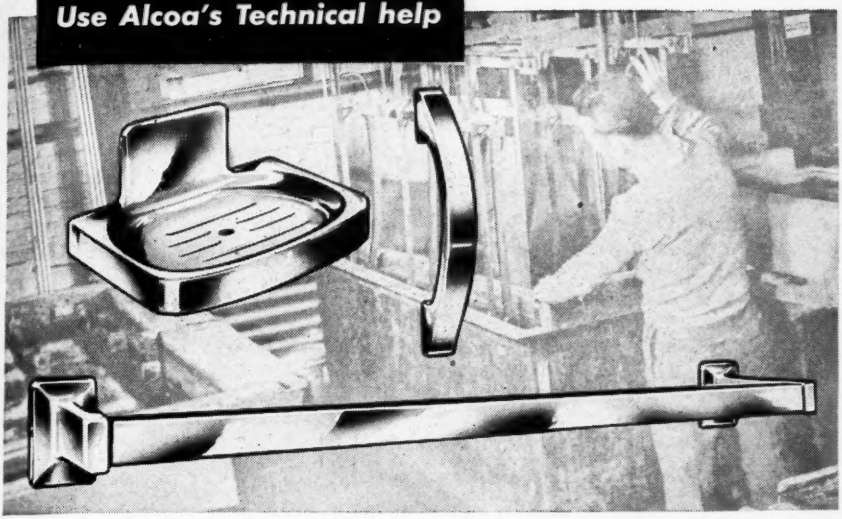


cent chromium and 20 per cent nickel. The chromium nickel stainless steels are not hardenable through heat treatment; however, an increase in hardness can be secured by cold working or cold finishing.

The 12 per cent chromium stainless steels contain approximately 11 to 14 per cent chromium with carbon ranging from 0.05 to 0.35 per cent. These alloys are capable of heat treatment similar to the various S.A.E. steels and the maximum hardness which can be obtained is approximately 55 Rockwell C. The hardness, of course, varies with the carbon content and to a lesser extent with the chromium content. Those alloys with carbon content of approximately 0.10 per cent with chromium in the range of 13 to 14 per cent are not capable of being heat treated to as high hardness as a 0.10 per cent carbon steel with 12 per cent chromium. The non-hardening effect of the chromium is masked as the carbon content is increased and the higher carbon, 12 per cent chromium alloy, actually contains approximately 13 per cent chromium. The 12 per cent chromium alloy steels are produced in various modifications which contain nickel, aluminum and tungsten. The other stainless steels which are hardenable through heat treatment, but contain higher chromium content (17 per cent chromium), have added to them sufficient carbon or other elements such as nickel and manganese to produce the necessary phase changes required for hardening by heat treatment. Here again, the maximum hardness is limited by the amount of alloying element other than chromium. The high carbon grades of 17 per cent chromium (1.00 per cent carbon) are capable of being heat treated to hardnesses up to approximately 62 Rockwell C.

The ferritic stainless steels consist of the low carbon 17 per cent chromium, and 28 per cent chromium

Use Alcoa's Technical help



DON'T LET THOSE BRIGHT CHROME-ON-ALUMINUM JOBS STUMP YOU

Your present equipment will handle chrome plating over aluminum. After suitable surface preparation, aluminum may be plated, using conventional plating methods. And you are set to go after your share of the increasing business in plating on aluminum.

If you have specific questions or problems, give our finishes experts all the information . . . they'll give you the answers promptly.

ALUMINUM COMPANY OF AMERICA, 621 Gulf Building, Pittsburgh 19, Pa. Sales offices in 55 leading cities.

Write for a copy of the 64-page manual "Finishes for Alcoa Aluminum".

ALCOA ALUMINUM

1888 1948 60 YEARS OF SERVICE

steels. These steels are not capable of hardening through heat treatment. However, by cold working, the alloy can be increased in hardness to approximately 100 Rockwell B. Most cold headed parts such as fasteners, and so on, are made from this alloy due to its low rate of work hardening. It is possible to process this alloy somewhat like carbon steel.

The chromium nickel stainless steels are of different metallographic structure than either the martensitic (12 per cent chromium) or ferritic (17 per cent and 28 per cent chromium) stainless steels and are non-magnetic, while the straight chromium stainless steels are magnetic. The chromium nickel stainless steels are not hardened by heat treatment. However, hardness up to approximately 45 Rockwell C can be obtained by selection of analysis and cold work. The nickel content determines the degree of cold work hardenability obtained in the chrome nickel stainless steels. Those alloys with low nickel such as an alloy containing 18 per cent chromium and 7 per cent nickel will have a much higher rate of cold worked hardenability than an alloy containing 18 per cent chromium and 12 per cent nickel. The chromium nickel stainless steels are seldom used for parts which are to be barrel finished and the grades occasionally used contain approximately 18 per cent chromium and 9 to 10 per cent nickel such as Type 303, the free-machining grade, or Type 304, the non-free-machining grade of 18-8 stainless steel.

Thus, you will see that the variations that can be and are being made in alloys for one purpose or another make difficult, if not impossible, the outlining of a course of procedure that might be applicable to all stainless steels.

Since "color" and not "finish" is the point at which most of you are aiming, we can tell you that any "color" you

"CADET"

BUFFING AND POLISHING LATHE

IMMEDIATE DELIVERY

The "Cadet" type CT buffing and polishing lathe is available in 2, 3 and 5 H.P. Ball bearing equipped. Equipment includes: V Belt drive, Hand Brake (extra), Shaft Lock, and Push Button Safety Starter with overload protection. Spindle length 44", spindle height 39", arbor diameter 1¼".

Type CT

Type	*H.P.*	*Price*
2 CT	2	$298.
3 CT	3	$315.
5 CT	5	$375.

Builders of Standard grinders, and buffing and polishing machines ¼ H.P. to 60 H.P.

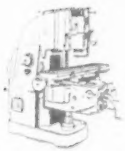
Write today for Catalog B10.

THE STANDARD ELECTRICAL TOOL CO.

2518 RIVER ROAD **CINCINNATI 4, OHIO**

Extra S.A.*

without extra cost



With the buyer in the driver's seat today . . . purchasing what he *wants* instead of what he can get . . . it's more important than ever that your product have an extra sales appeal—a good-looking finish.

You can meet the demands of this competitive market by using a finish developed for your specific needs by the Advance Paint Company. Advance finishes combine sales-increasing "eye-appeal" with a protective, long-wearing surface.

Your product will take on a better appearance without running up finishing costs, for the Advance finish you use is formulated specifically for your product and for your spray room conditions.

Get the best finish for your metal product at the lowest cost by turning your finishing problems over to the Advance Paint Company for recommendations and formulations.

***SALES APPEAL**—the qualities of a salable product, especially its appearance, performance, and durability, which cause it to be selected by the buyer.

Advance PAINT COMPANY

Indianapolis Indiana

MANUFACTURERS OF INDUSTRIAL FINISHES

obtain through a barrel finishing operation will be generally dull for the stainless steels, as compared with a like color secured by a like procedure on straight carbon steels. Most of you know that on steel stampings of straight carbon steel, mostly designated as No. 2 hard, that a simple soap lubricant to which is added a single one-ounce ball of sodium cyanide will produce a high lustrous color. A like procedure on any of the stainless steels will produce a dull blue or bluish gray cast. If you will take either highly-colored carbon steel or silver plate and recognize them as representing a degree of 100 per cent reflectivity, then by comparison, the "color" reflectivity obtained on stainless steel will not be more than 60 per cent of that exhibited by the highly-colored carbon steel or silver. The very highly-colored hardened steel burnishing materials you use in your barrels have, when new, a high reflectivity similar to that of hardened steel balls used in ball bearings. Now in both instances this color is produced with nothing more complicated than Vienna Lime and water, and yet this same procedure on any of the stainless steels with which we have worked produces nothing much better than what might be termed a "smeared" surface. This is especially true of stainless steels of the unhardenable varieties. As we recall it, the best results we have thus far secured have been on parts made from the 12 per cent chromium stainless steels.

We have had parts submitted to us, blanked from stainless steel strip, that had every appearance of having been pre-polished, or in lieu of that, rerolled through very highly polished rollers much as carbon steels are rerolled to produce a fine and highly-reflective surface skin, but even these parts when submitted to a casual barrel finishing operation lost most of their "color" in the process. Recently, it was our privilege to examine a piece of 12 per cent chromium strip steel with a very high color. On casual examination several very fine lines were noted over the entire length of the surface of the strip. The same surface, when magnified, disclosed literally hundreds of these fine lines running the entire length of the piece as though a very fine abrasive had been drawn along lengthwise and the sharper particles had produced these fine scored lines on the surface. We have noticed these same lines on stainless steel as well as on straight carbon steel parts submitted to us for experiment, but whereas a suitable barreling operation on the straight carbon steels tends to eliminate the lines, a like operation on the stainless steel surfaces seem to accentuate the lines. This is true even though the Rockwell hardness of the two differs, and the carbon steel is the harder of the two, a seeming inconsistency.

ELECTRO
COLD STRIPPER

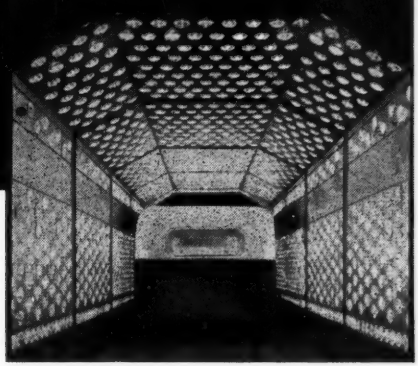
- Cleanly and quickly removes all paints, enamels, synthetics or wrinkles. The finish literally "pops off."
- Permits refinishing in minutes—not hours. Especially effective on hard-to-remove baked-type finishes.
- Non-inflammable. Non-injurious.

Write for sample and quotations, or order 5 gallons at drum price.

ALLIED FINISHING SPECIALTIES CO.
2637 W. Grand Ave., Chicago 12.

TRAILERS! TRICYCLES! CAN OPENERS!

JENSEN Infra-Red Does ALL!



WHETHER YOU manufacture trailers, tricycles or can openers . . . *regardless what you manufacture* . . . you can profit by finishing your product via JENSEN INFRA-RED.

From the largest product to the smallest, JENSEN INFRA-RED gives you faster, better finishing at lower cost. *Here's why:* Jensen — *and only Jensen*—gives you "DUAL HEAT" and "NESTED LAMPS."

Whatever your problem, Jensen can design and build a *more efficient* Infra-Red Oven for *you.*

JENSEN Specialties Inc.

ACCEPT THIS OFFER

Without cost or obligation, we will run laboratory tests on your products, using your finishes. All parts will be returned for your inspection. Act today!

America's Foremost Designers and Builders of Infra-Red Ovens . Conveyors . Paint Dip Tanks

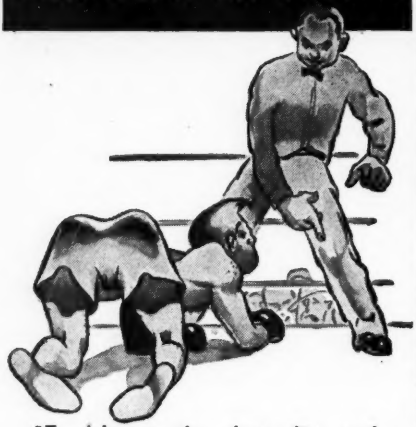
9331 FREELAND • DETROIT 28, MICHIGAN, U. S. A.

SERVICE BRANCHES In:

Atlanta, Ga.
Chicago
Cincinnati
Cleveland
Columbus, Ohio
Detroit
Franklin, Mass.
Grand Rapids, Mich.
Indianapolis
Philadelphia
Pittsburgh
Peoria, Ill.
Rockford, Ill.
Toledo, Ohio
Waterbury, Conn.

In Finishing Production . . . the Future Belongs To Men Who *Plan* For It!

The DUST-ALL
TACK RAG
Collects Dust and Dirt Too!



IT picks up the dust, dirt and specks that spoil paint jobs. It assures a pride-arousing finish job and a profitable one. Get them from your dealer or write us.

The Dust-All Tack Rag comes in the characteristic Red Checkered Bag.

HARDING
MANUFACTURING CO.
10614 Gratiot Ave., Detroit 13, Mich.

We have in the barrel finishing of stainless steels some phenomena rather difficult for us to understand and for which at least up to this time we have no adequate answer. Much of our activity for many years in barrel finishing has been in what is termed the food service field, where flatware is barrel finished to ensure a continually lustrous and high color. With either sterling or silver-plated flatware we have no difficulty either in the manufacture of the flatware in the first instance or in its subsequent barrel finishing for maintenance. The color of stainless steel flatware that has been color buffed at the factory can be maintained and in many cases it is necessary to look twice to distinguish the silver plate from the stainless steel. Yet, we have not by any means we have thus far used been able to produce the same color in the first instance by any barreling operation.

One of our research clients has simply said that if we can develop the barreling process through what we term the "pick and shovel" phase, by which is meant the smoothing of all edges on the blanked and formed parts, that he will settle for that as far as barrel finishing procedure is concerned even though the parts have that "smeared" surface appearance. This is rather quickly erased and a fine color obtained by a simple color buffing operation. However, there must be some method that would make possible the color buffing of stainless steels by the barreling process.

We have found that the best results were secured with heavy loads (800 to 1,000 lb.) operating in a barrel, and it might be that if we had larger barrels available that would produce even a greater load pressure element, this might be an answer to the problem of coloring stainless steel parts. It must be that hardness has something to do with the problem for we have found this to be true in the case of typical

FULL PROTECTION
until you want it PEELED
. . . THAT'S

COPEEL

. . . the modern plastic coating that gives flexible-film protection to the surface of your product

Why run the risk of expensive rejects of parts damaged during storage . . . transit even assembly? Through all these stages Copeel *protects* your products against marring – scratching – rust and corrosion!

Copeel protects the highly polished metal surfaces of precision parts . . . can also be used over properly cured synthetic baking enamels. Applied by dip or spray method, Copeel quickly hardens to a tough flexible film that peels off easily – like the skin of a banana – when required.

Write for Technical Data Bulletin #T504 for full details regarding the most suitable type of Copeel to protect your products. Better yet – let an M&W Sales Engineer discuss with you the best and most economical way to use Copeel.

PIONEERS IN PROTECTION
M.&W.Co. 1876
. . . where industry goes with finishing problems

MAAS & WALDSTEIN COMPANY NEWARK 4, NEW JERSEY

Boston 15, Mass. • Chicago 12, Ill. • Los Angeles 34, Calif.
Pacific Coast Division: SMITH-DAVIS CO., 10751 Venice Boulevard, Los Angeles 34
MANUFACTURERS OF INDUSTRIAL FINISHES

stainless steel samples submitted to us for finishing. When the plunger of the die engages a strip of metal, it forces it downward into the die until the material reaches its elastic limit and snaps off. Now during this first operation in which the material is forced into the die, a form of cold working takes place, and in a subsequent barreling operation, this area will exhibit a higher color and greater reflectivity than we find on any of the other areas of the part.

This then is in the nature of a preliminary report on the barrel finishing of stainless steel. We are by no means finished with the experiments we have planned and we have some definitely new materials to use that so far as we know have never been used in barrels before, typical of which would be a very fine impalpable powder finer than 200 mesh used in the polishing of granite to a high lustre. In addition we are developing a rather wide line of what we choose to term "By-Product Barrel Finishing Materials," all of which will literally have their baptism in our scheduled experimental runs on stainless steels. The object of the research, of course, is to seek out and report to you the grade and kind of stainless steel that gives the best response to barrel finishing procedure.

For a very great deal of our knowledge of stainless steels and their varying characteristics we are indebted to Mr. R. H. Henke of the sales development and engineering service department of Allegheny-Ludlum Steel Corporation, Breckenridge Pa. We are as well grateful for the interest shown by others of the manufacturers of these various stainless steels. They are without exception just as interested in the development of methods for the mass production finishing of parts formed from their material as you are, and with their support and continued en-

Immediate Shipment!

COLUMBIA ELECTROPLATING MOTOR GENERATOR SETS

Complete with Controls and Starters
1,000, 1,500, 3,000 or 5,000 Amperes, 6 Volts

Offered Subject to Prior Sale, Write or Wire for Quotation

COLUMBIA ELECTRIC MFG. CO.
4535 HAMILTON AVE. CLEVELAND 14, OHIO

GENERAL CHEMICAL
ZINC FLUOBORATE
Solution

SPEED-UP PLATING

IMPROVE QUALITY

CUT OPERATING COSTS

Due to outstanding performance, particularly in high speed, continuous plating operations, General Chemical's Zinc Fluoborate Solution has fast won an important place in the electroplating industry. The superiority of this General Chemical Research development to other commercial zinc baths is indicated by the unusual characteristics of the fluoborate electrolyte as well as by the type of deposits obtained. Learn more about Zinc Fluoborate and what it can mean to you in faster, more economical operations. Send today for the helpful literature described below.

SPECIAL FEATURES of Zinc Fluoborate

- Gives excellent adherence, uniform coverage, semi-lustrous finish
- Possesses high conductivity
- Permits use of high current densities

ADVANTAGES

for HIGH-SPEED PLATING

Zinc may be readily deposited at a higher rate from the Zinc Fluoborate bath than from other acid baths, for this metal fluoborate electrolyte possesses high conductivity and permits use of high current densities.

for TANK and BARREL PLATING

Zinc may be readily deposited on cast or malleable iron from the Zinc Fluoborate bath with excellent covering power, very good adhesion, and with a semi-lustrous appearance

GET THIS Important Technical Manual . . .
WRITE TODAY

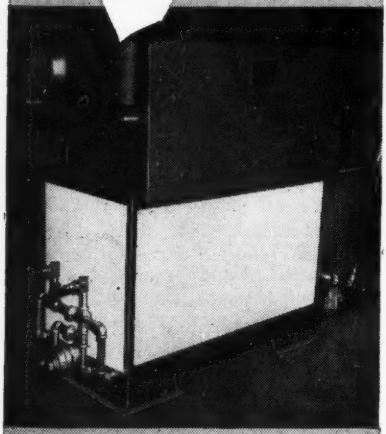
General Chemical Technical Information Manual ZF-1 contains extensive data on high speed, and tank and barrel plating with Zinc Fluoborate, including operating details, bath make-up, analytical methods, etc. For free copy, write General Chemical Fluorine Division, 40 Rector Street, New York 6, N. Y.

BASIC CHEMICALS

FOR AMERICAN INDUSTRY

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
Offices in Principal Cities

CHECK ON THESE
D'OILER
PLUS ADVANTAGES!



1 EXPERIENCE-DESIGNED
2 JOB-ENGINEERED
3 ECONOMY OPERATED

FOR THOROUGH METAL CLEANING

The D'OILER Vapor Spray machine, illustrated above, can be used as a vapor-spray, or a straight vapor degreasing unit. Drain table recaptures dragout from basketed parts . . . all-around insulation reduces heat losses . . . exhaust duct on two sides safeguards operator . . . pump drive for standby solvent eliminates hand pouring.

Every D'OILER type is built to do a specific job . . . is designed with the "on-the-job experience" necessary to provide a degreaser that does the work, in the required volume, economically.

Our engineers will gladly advise on degreasing problems; your inquiries will receive prompt attention. Write today.

Mechanical
PROCESS COMPANY
P. O. BOX 88, SOUTH ORANGE, N. J.

couragement, we hope that it will not be too long before we have something more definite for you both as to materials to be used and types and sizes of barrels.

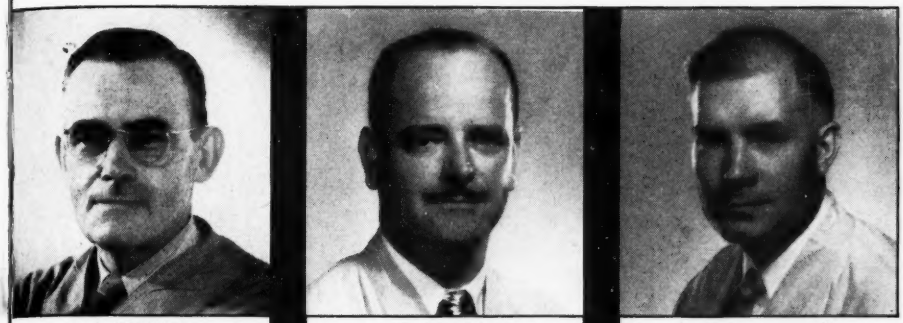
After some 20 years of controversy regarding the relative merits of antimony lead or tin lead as an alloy material from which to fabricate lead anodes for chromium plating, a lead anode has now been developed which contains both tin and antimony as alloying elements.

A method of color anodizing aluminum die castings, including those castings containing substantial amounts of silicon, is now available. The die castings can be color anodized in several attractive, solid, dark colors.

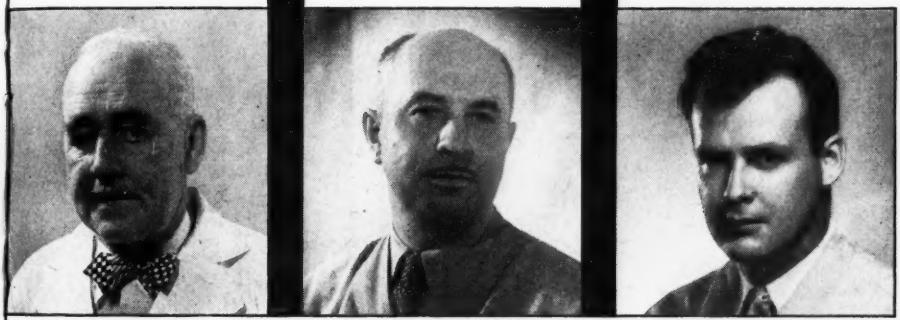
Luminescence is the term used for the emission of cold light — that is, light that is produced without heat. The firefly emits a cold light. Fluorescent light, produced by the tubular type lamps, is another type of "cold" light. "Luminous" paint and plastics also emit cold light—that is, after being charged by natural or artificial light sometime during the day.

At last the world has discovered the ultimate in yardsticks, can now throw away the celebrated "meter bar," long guarded so carefully near Paris. As described in "Scientific American," the length of a wave of pale green light given off by a rare form of mercury transmuted artificially from pure gold in the atomic pile at Oak Ridge becomes the world's new standard. It is accurate to one part in a hundred million! Moreover, it can be reproduced immediately anytime, anywhere.

These 6 FULLER TECHNICIANS



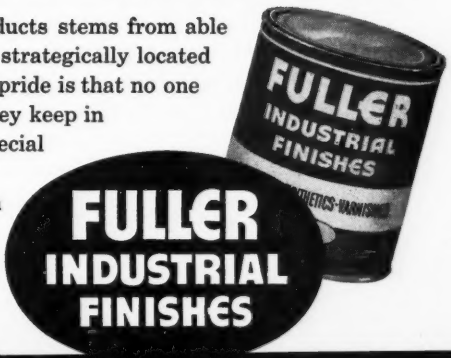
L. C. BARNETT | L. R. BELTRAMI | A. W. BLOOMQUIST



A. J. CRICHTON | G. P. HEISKANEN | S. W. HEGGEN

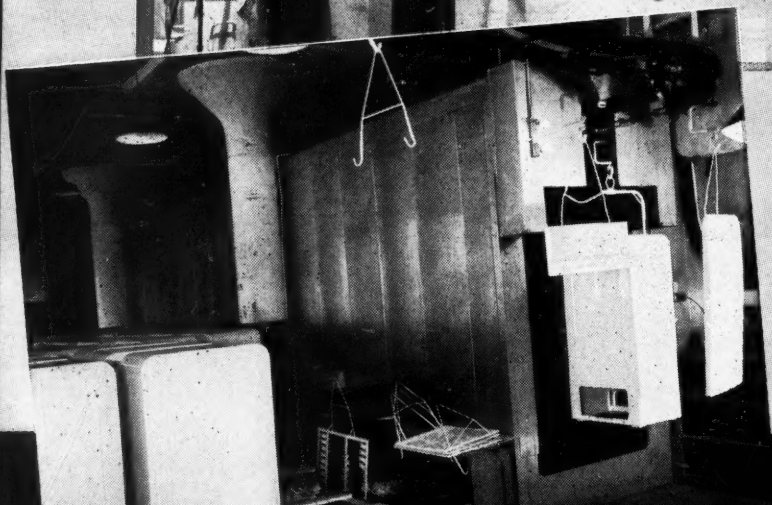
SPECIALIZE IN *WOOD FINISHING*

Fuller's leadership in wood finishing products stems from able technicians in well equipped laboratories strategically located to give prompt West-wide service. Their pride is that no one shall get ahead of Fuller! Not only do they keep in touch with every development in their special field, but they constantly originate new wood finishing procedures. Ample reason why most Western wood finishers use Fuller products! W. P. Fuller & Co.
Industrial Finishes Division
San Francisco 19, California



COMPLE

for



Above, and at the right above, you see Refrigerator Parts receiving their Fine Synthetic Enamel Finish in Mahon Hydro-Filter Spray Booths, which are part of a Complete Mahon Finishing System.

... W

Here yo
System
by Mah
facturers
finish on
tance . .
is an inf
is the ti
your pro

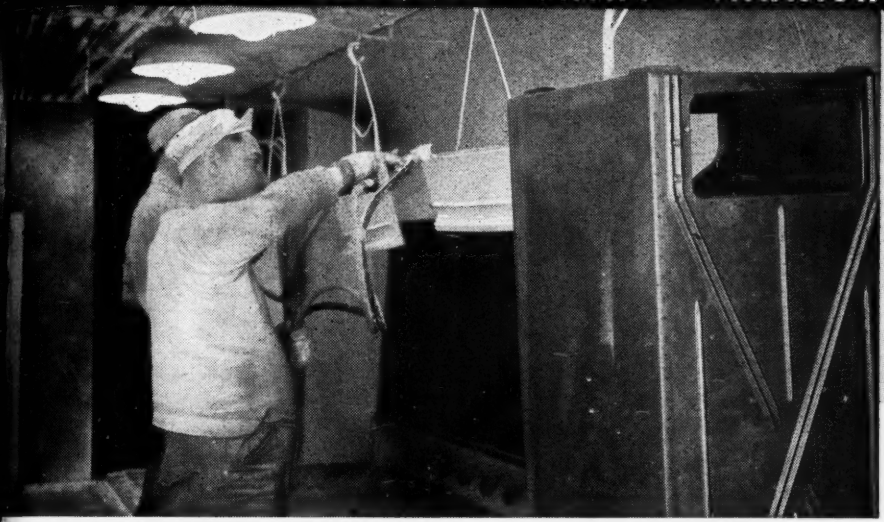
T H

Engineer
Machine
Paint Sy

MA

SYSTEMS

for ENAMEL • LACQUER • PAINT • VARNISH



. . . Where Fine Finish is Imperative, it's Mahon Equipment

Here you see elements of a Complete Finishing System planned, engineered, built and installed by Mahon for one of the world's largest manufacturers of refrigerators. At point-of-sale, the finish on household appliances is of vital importance . . . as in the automobile industry, eye-appeal is an influencing factor in refrigerator sales. Now is the time to safeguard the future saleability of your product with the finest finish obtainable. You can rely on the Mahon organization to plan and engineer a Finishing System to do just that . . . because, Mahon's twenty-eight years of experience in this highly specialized field, enhanced by constant research and development, have endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon Insert in Sweet's Mechanical Industries File for complete information.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. . WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems including: Metal Cleaning Machines, Rust Proofing Machines, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Units, and Drying and Baking Ovens. Also Paint Sludge Reclaiming Units, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

MAHON

SPRAY BOOTH Coatings

By ROLLIN H. WAMPLER

CLEANING spray booths is always a troublesome and dirty job. Good housekeeping demands periodic cleaning in the interest of clean work, good appearance, and reduction of the fire hazard.

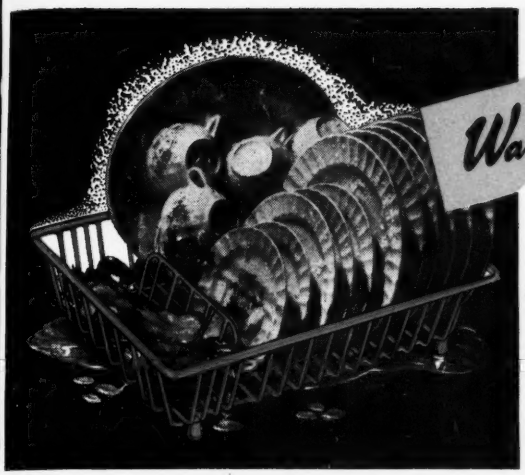
To allow the overspray to accumulate on the bare walls requires hours of hard, tedious work in cleaning. The old method of coating the walls to facilitate cleaning involves applying a thick coating of heavy grease and then covering with heavy wrapping paper. But often the paper does not stick, especially in hot weather. Also, the paper tears easily when it is pulled off.

Water-Soluble Spray Booth Coatings

Certain water-soluble materials have been developed to facilitate cleaning. These come as dry powders to be mixed with hot water for use. A solution the consistency of heavy paint is used for brush application. If for spray application, it should be somewhat thinner. Figure 1 illustrates the application of a water-soluble coating. Mix the material by pouring boiling water over some of the dry powder, stirring for several minutes. Then add more powder with continuous stirring until the consistency is about right. Any material not used can be stored, but should be stirred well before being used again.

The walls of the booth should be free from grease, soap, paper, and spray accumulations. Clean the walls, floor, ceil-

Fig. 1 — Illustration shows use of a spray gun to apply a water-soluble spray booth coating to the sides of a water-wash spray booth. *(Photo courtesy Detrex Corp., Detroit 32, Mich.)*



Watson-Standard

SOLVES A

tough problem

The manufacturer of this wire dish drainer needed a coating that would provide his product with these characteristics: beauty, durability and protection against chipping or scratching dishes. Watson-Standard supplied the answer.

A newly developed organosol type vinyl coating by Watson-Standard, superior to conventionally used rubber latex, was the complete solution. Here's why:

1. Only one coat is needed.
2. It cures in 15 minutes.
3. It possesses greater stability.
4. All colors can be used.
5. Colors will not fade.
6. Aging properties are much improved.
7. Costs go down and production goes up because of easier application.

Watson-Standard Vinyl coatings may be just what you're looking for. Write today for complete information. Your inquiry will receive prompt, careful attention.

℞ TOUGH JOB HEADQUARTERS
Prescription Finishes

Give us your coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

THE WATSON-STANDARD CO.

Manufacturers of
PAINTS • VARNISHES • INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
WAREHOUSES: BOSTON, BUFFALO, DETROIT, NEW YORK

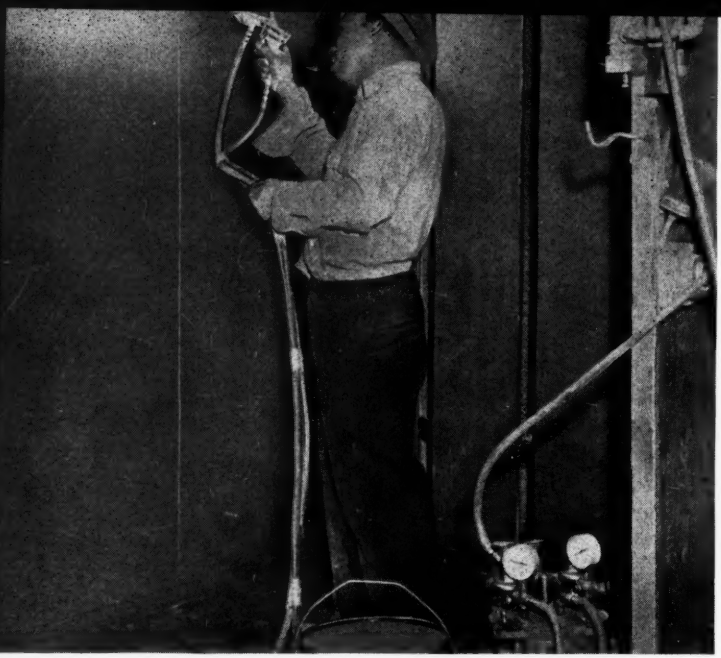


Fig. 2—A view showing application of peelable plastic spray booth coating. Note difference in spray gun used for this operation as compared with that used for water - soluble compound and illustrated in Fig. 1.

ing, baffles, turntable, fan blades, and exhaust ducts. If they are greasy, wash down with a solution of 8 ounces of trisodium phosphate per gallon of hot water and rinse clean by hosing.

Apply the coating with a wide paint brush, taking pains to cover every surface except the sprinkler system outlets. Or build it up by spraying, but mask the sprinkler outlets. The material should be dry on the exhaust fan before it is run, but the booth can be used while the coating is still wet. The coating is very light in color, almost white, so that the lighting is improved. The accumulations can be cleaned off by scraping. If they are heavy enough, they can often be peeled off in large sheets.

Peelable Plastic Coatings

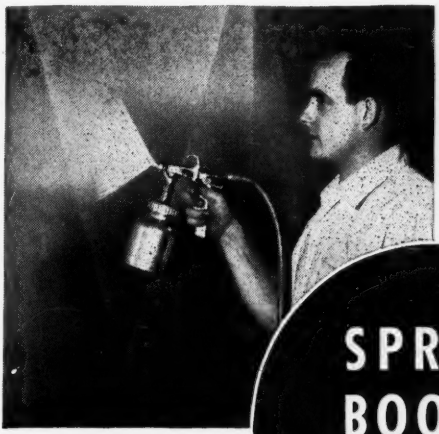
Perhaps the most modern and most convenient spray booth coatings are the type that can be peeled off when dry, regardless of the thickness of the accumulations. This type, as a prepared liquid, is furnished based on vinyl resins, ethyl cellulose, lacquer and other materials. Such coatings adhere well, are tough and elastic, and yet can be peeled off with ease. Their color is very light, so that lighting in the booth is improved.

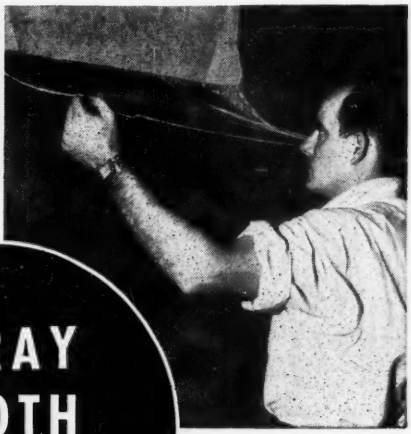
Before applying the peel-off coating the surface must be free from grease and dirt. It can be cleaned by scrubbing with alkali and rising as described above, or by scrubbing with mineral spirits. Deposits of grease and dirt make it impossible to apply a smooth, uniform film which may readily be stripped off.

This type of coating is best applied by spraying, as shown in Fig. 2. Since the material is quite thick, the air pressure at room temperature should be 60 pounds or more and the fluid pressure in the tank 25 or 30 pounds. At lower temperatures the air pressure should be increased to 80 to 100 pounds, and the fluid pressure to 35 to 40 pounds.

Hold the spray gun about 8 to 12 inches from the surface, with the fan adjusted to a width of about 6 to 8 inches. Apply as heavy a coat as possible without getting sags. Build up

America's Leading Manufacturers Use





SPRAY BOOTH SHIELD

to cut cost... save time

SPRAY ON clean booth. That's all! Perfect protection against drift.

PEEL OFF sheets — not shreds! No more tedious scraping. Job's done!

If Time Means Money In Your Plant

. . . you will insist on using this "tailor made" peelable coating.

Spray Booth Shield is plastic-based, tough and free stripping.

It requires no special reducer . . . no special equipment and atomizes at normal pressures.

ORDER YOUR *TRIAL* GALLON TODAY . . . billed at DRUM price.

Prompt shipments F.O.B. Chicago.

RAMSELL PRODUCTS, INC.
712 S. Fifth Ave., Maywood, Ill.

Check these Advantages

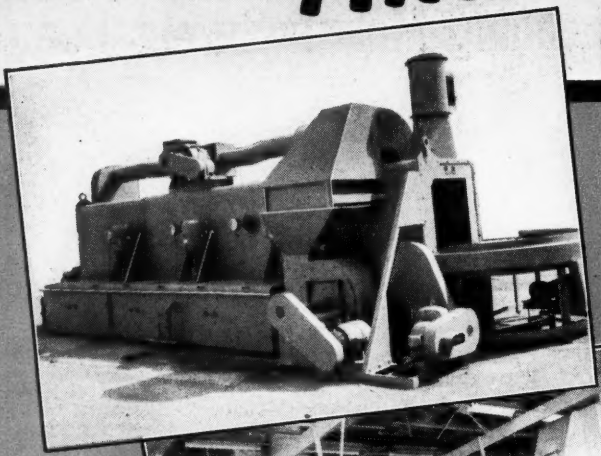
- ✔ *"Ready-to-use"*
- ✔ *Atomizes at normal pressures.*
- ✔ *Requires no special reducer.*
- ✔ *Needs no special equipment.*
- ✔ *Excellent coverage.*
- ✔ *Saves time . . . labor.*
- ✔ *Economical.*

One leading manufacturer cut clean up time from 18 to one man hours! This is a typical experience with "Spray Booth Shield."

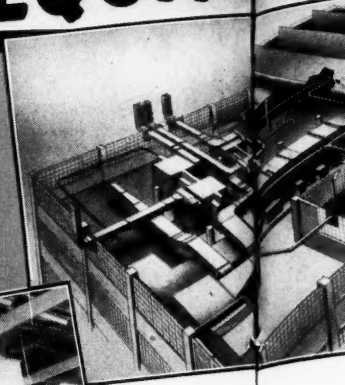
Ramsell Products, Inc.

712 S. Fifth Ave., Maywood, Ill. Affiliated with Pyroxylin Products, Inc., Chicago, Ill.

Co-ordinated FINISHING EQUIPENT



3-stage Washer and Blow-off, with Powered roller turn.

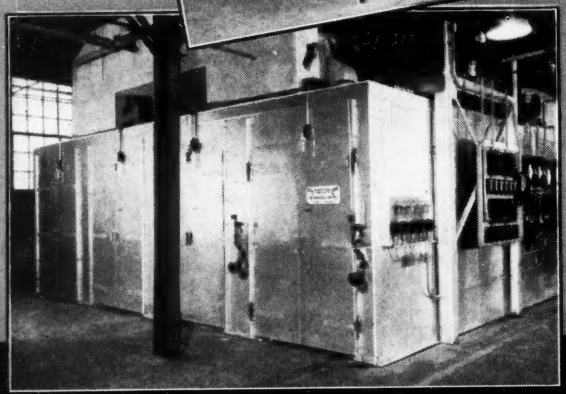


Artist's wash drawing, sh... ing company's Complete ... by Peters-Dalton, Inc.

...view of a larg... ...entirely eng...

Staggered Spray Booth as erected in automobile body plant.

see our CATALOG in SWEET'S FILE MECHANICAL INDUSTRIES



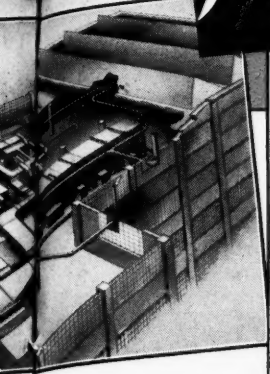
4-compartment, gas-fired Dehydrating Oven.

WASHERS SPRAY BOOTHS OVENS

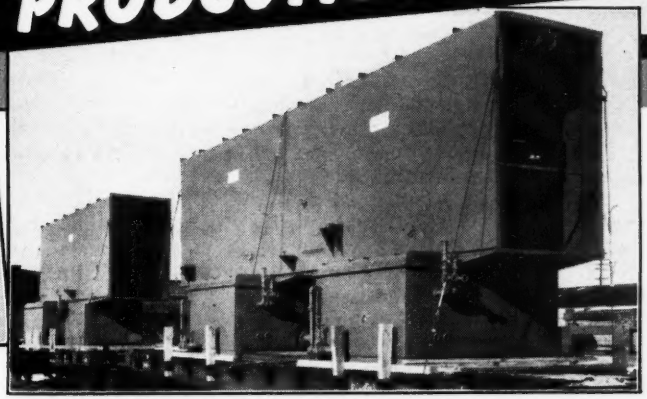
PRO... D...

179 AN F...

ENT for ALL PRODUCTION USES



...ry view of a large eastern manufactur-...m—entirely engineered and installed



A car-load shipment, showing a consignment of a complete Metal Protective System

In planning a COMPLETE FINISHING SYSTEM—as a single, co-ordinated UNIT, three facts stand out—LOWER initial cost—valuable floor space saved through COMPACT DESIGN—lowered Production Costs through integration of the finishing stages—accomplished *only* by engineering Washers, Spray Booths, Ovens and other necessary equipment to the exact requirements of your product and production.

The accompanying illustrations show typical examples of Peters-Dalton engineered installations. When considering new Finishing Equipment, remember that in a Peters-Dalton system you get *better planning* and *better engineering*. . . . the result, BETTER FINISH at LOWER COST.

TERS
DALTON Inc.
AIRBRUSH WHIRL
AN ROAD • DETROIT 12, MICHIGAN

heavier films by doubling back over cracks and in corners to prevent tearing when the coating is pulled off. A normal dry film thickness on large flat surfaces is about 2 mils. It should be thicker over cracks, in corners, and over braces.

Of course, lights and sprinkler outlets should be masked when the booth is sprayed. Incidentally, when cleaning the booth be sure to wash off the globes or lenses covering the lights, because a very little accumulation will seriously reduce the lighting.

The booth is ready to use about 10 or 15 minutes after being sprayed. To clean, insert the blade of a putty knife under the edge of the film and peel it off in as wide sheets as convenient. A spray booth can be cleaned in as little as 5 or 10 minutes in this manner. Figure 3 shows an operator removing a lacquer-type coating.

The background of this particular type of coating is interesting. It was originally developed in World War II as a peelable coating for fighter planes shipped overseas as deck cargo, and for protecting other military equipment and replacement parts, especially for shipping to tropical regions where corrosion is rapid and severe. It was used to protect metals in process, the coating resisting severe stamping and pressing operations. When the war ended, peelable coatings were used in storing battleships, cruisers, aircraft and other equipment. Such coatings protect the equipment, and yet permit it to be reactivated in a very short time.

The peacetime uses of peelable coatings include coatings for spray booths, metal sheets in process, packaging, storing, stop-off and masking compounds, and paper coatings.

A new line of matched aluminum cabinets, including an exclusive "knocked-down" wall type which the consumer can carry home under his arm, is now available. The new cabinets, available in walls, base, and sink types, feature light weight combined with durability to facilitate installation, soundproofing of doors and drawer fronts, adjustable shelves, and ball bearing roller slides.

The cabinets are finished in a plastic type paint base coat, applied first to assure positive adherence of the subsequent enamel final finish.

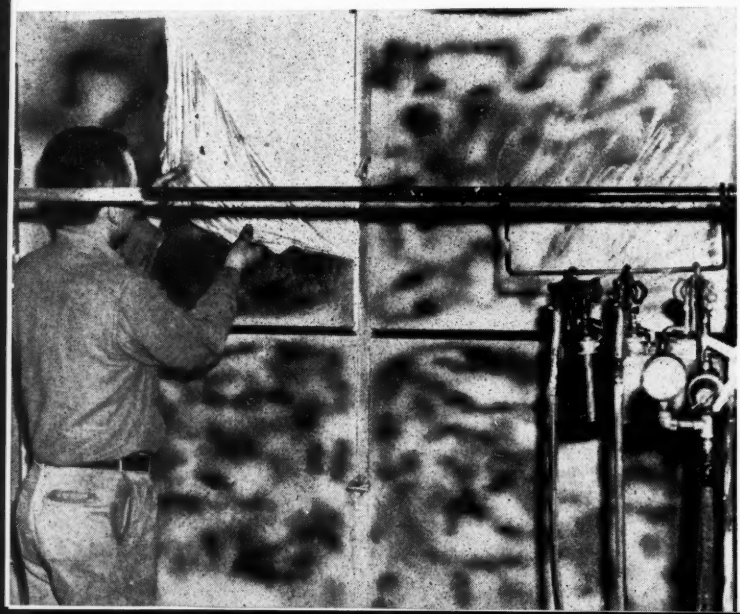
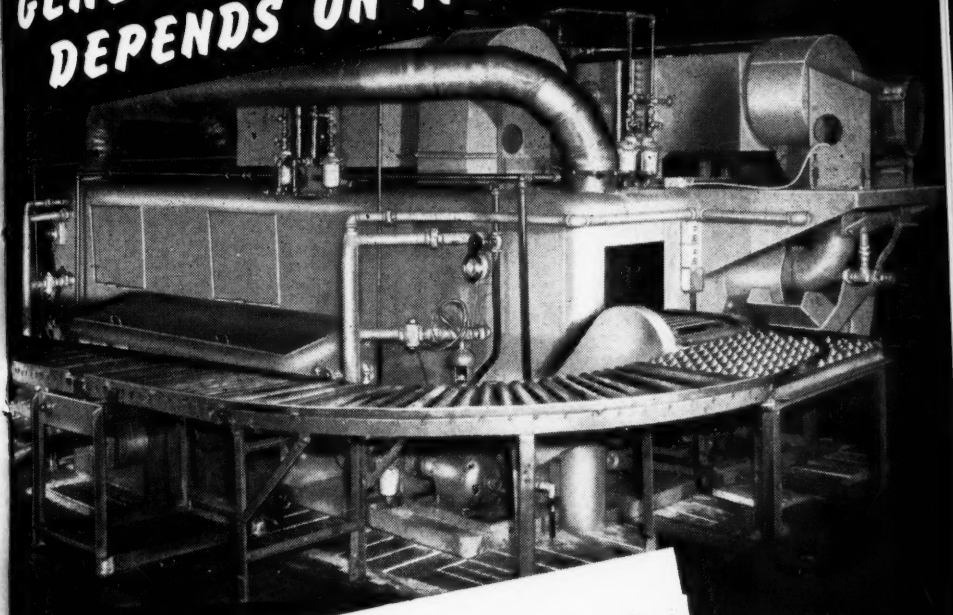


Fig. 3 — Illustration shows operator removing a lacquer-type spray booth coating together with the accumulated paint overspray. *(Photo courtesy United Chromium, Inc., New York 17, N. Y.)*

GENERAL ELECTRIC DEPENDS ON IT!



ONE of the many large manufacturers throughout the country that relies upon CINCINNATI cleaning and finishing methods, General Electric, has found the solution to what was once a problem.

CINCINNATI satisfies their high output schedules. Performance data has proved that the low unit cost and the quick, effective operation spell satisfaction.

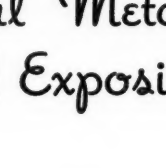
Whatever your metal cleaning problem, write CINCINNATI today. One of our engineers will visit or write you. There's no obligation.

Cincinnati

CLEANING AND FINISHING MACHINERY COMPANY

IRONTON, OHIO

30th Annual Metal Congress and Exposition



COMMERCIAL MUSEUM AND CONVENTION HALLS
PHILADELPHIA, PENNSYLVANIA
OCTOBER 25-29

The American Society for Metals is dedicating the 30th Annual Metal Congress and Exposition to "A Salute to Alloy Steel," as a tribute to the past 75 years of progress in alloy steel development. Alloy steels represent one of the outstanding credits to the metallurgists of America. More than 100 timely technical papers on alloy steel will be delivered at the Congress. Displays of over 350 manufacturers and processers of metals and metal products will dramatize alloy steel production and fabrication. In addition to the commercial exhibits, a special display outlining the 75 years of progress in alloy steel will be presented on the stage of Convention Hall.

To recognize individual achievement and outstanding contributions to alloy steel progress, the A.S.M. will present "distinguished service awards" to individuals who, by research, improved manufacturing processes, experimentation, new applications, and various other means, have furthered the development and acceptance of alloy steel. The presentations will form an important feature of the Metal Congress.

Simultaneously with the American Society for Metals, technical programs will also be conducted by the American Welding Society, the Institute of Metals Division, American Institute of Mining and Metallurgical Engineers, and

HARSHAW ANODES and CHEMICALS

OUR job for more than fifty years has been to concentrate on improving the quality of the anodes and chemicals used by platers. You can depend on Harshaw products to keep your production moving.

NICKEL PLATING . . . nickel anodes—all commercial grades and sizes . . . anode bags . . . nickel salts—single and double . . . nickel chloride . . . nickel carbonate . . . boric acid.

CHROMIUM PLATING . . . pure "Krome Flake" 99.8% CrO_3 . . . sulphates less than .10% . . . lead, tin-lead and antimony-lead anodes.

COPPER PLATING . . . copper ball anodes . . . Rochelle Salts . . . sodium and copper cyanides . . . copper sulfate . . . copper fluoborate.

CADMIUM PLATING . . . ball and cast cadmium anodes . . . cadmium oxide . . . sodium cyanide.

TIN PLATING . . . cast tin anodes . . . sodium stannate . . . stannous sulfate . . . tin fluoborate . . . acid tin addition agent.

ZINC PLATING . . . ball and cast zinc anodes . . . sodium and zinc cyanide . . . zinc sulfate.

LEAD PLATING . . . cast lead anodes . . . lead fluoborate.

SILVER PLATING . . . silver cyanide . . . silver nitrate.

Stocks are maintained in Cleveland and in branches at Chicago, Cincinnati, Detroit, Houston, Los Angeles, Philadelphia, Pittsburgh, and New York.

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

the Society for Non-Destructive Testing. Convention headquarters and meeting dates of the various societies at the 1948 Metal Show are as follows:

National Metal Exposition
Commercial Museum and Convention Halls
October 25-29

Annual Convention of the American Society for Metals
Benjamin Franklin Hotel
October 23-29

Annual Convention of the American Welding Society
Bellevue-Stratford Hotel
October 25-29

Annual Fall Meeting of the Institute of Metals Division
American Institute of Mining and Metallurgical Engineers
Hotel Adelphia
October 25-29

Annual Convention of the Society for Non-Destructive Testing
Hotel Adelphia
October 27-29

LARGE CASTINGS—SMALL METAL PARTS—LONG THIN PIPES ARE THOROUGHLY AND QUICKLY CLEANED IN A

BLAKESLEE

SOLVENT *Vapor* DEGREASER

G. S. BLAKESLEE & CO.

BLACOSOLV DEGREASERS AND SOLVENT

NIAGARA METAL PARTS WASHERS

G. S. BLAKESLEE CO., CHICAGO 50, ILLINOIS · New York, N. Y. · Toronto, Ont.

In 1947 We Said . . .

Now! Zapon Duranite-H . . . A Really New Finish!

TESTS

Superior soap resistance, still going a in 3% Gold Dust at 120° F.

Reproduction of actual advertisement published in 1947.

In 1948 We Repeat . . .

DURANITE-H is *superior* to porcelain in chip-resistance, flexibility, economy . . . and approaches porcelain in resistance to chemicals and scratches. In addition, it is *superior* to any urea and melamine modified alkyd enamel on the market.

Based on a *new* organic resin development, **DURANITE-H** has proved its original claims and *more* . . . it has weather resistance, permanence, toughness, chemical resistance.

Now formulated for spraying, with variations for dipping and roller-coating, it is ideal for refrigerator interiors, electrical appliances, metal cabinets, display signs, wall tile, fire extinguishers, food handling equipment, photographic equipment, aluminum sinks, hot water heaters, washing machine tubs, outdoor signs, and many other items.

DURANITE-H is only *one* of a long line of tough, fast-baking **DURANITE** finishes especially formulated to provide faster production-line use, combined with a hardiness that makes them withstand rough usage without losing their original brilliance of appearance. Drop us a line—we will be glad to supply wet samples, panels, and printed information.

ZAPON

26th ANNUAL MEETING

Federation of Paint and Varnish Production Clubs

CONGRESS HOTEL, CHICAGO, ILLINOIS

NOVEMBER 4, 5, AND 6

The 1948 Annual Meeting of the Federation of Paint and Varnish Production Clubs will be held at the Congress Hotel, Chicago, Illinois, on November 4, 5, and 6. In welcoming members and visitors to the meeting, Carlton H. Rose, president of the Federation, has announced that a well-rounded program of technical papers has been arranged. Papers will be presented by constituent clubs and by representatives from France and England. One day will be devoted to papers and discussions covering new developments in chemical engineering in the paint industry.

The Paint Industries Show, which is one of the important features of the convention, will offer paint men direct contact with exhibitors showing the latest developments in raw materials and processing equipment for the manufacture of protective coatings.

A full entertainment program, consisting of many features of special interest to the ladies attending the convention, has been arranged by the Chicago Club's Host Committee under the chairmanship of Robert E. Prince.

According to custom, the annual banquet will be held on Saturday evening at the close of the final business session.

Tentative Program

Wednesday, November 3

2:00 P. M. Registration
Council and Annual Meeting
6:00 P. M. Council Dinner

Thursday, November 4

8:00 A.M. Registration
9:00 A.M. Paint Show Opens
9:30 A.M. Meeting opens. Greetings: C. H. Rose, President. Welcome from Host Committee: R. E. Prince, Chairman.
The Styrenation of Vegetable Oils: Detroit Club.
Weathering Machine Correlation in the Cleveland Club and other Areas, Part II: Cleveland Club.
Report of Paint Show Committee: H. H. Zimmermann, Chairman.
Annual Report of President: C. H. Rose.
The Effect of Aluminum Stearate on Embrittlement of Highly Pigmented Oil Films: C.D.I.C. Club.
Address by J. F. Battley, President, National Paint, Varnish and Lacquer Association, Inc.
Pigment Dispersion and Pigmented Base Products for Lacquers and Enamels: Jean Crouet, Paris.
The Cure Plate as a Possible Tool for Alkyd Manufacturers: Golden Gate Club.
LUNCHEON
2:00 P. M. The Standardization of Methods of Measuring Viscosities of Nitrocellulose Lacquers: New England Club.
Investigation of Methods for Measuring Drying Time: New York Club.
Pigment Volume Concentration in White House Paints in Oil Conserving and Prewar Vehicles: Montreal Club.
Tall Oil Varnishes: Northwestern Club.
A Study of Soya-Tung Combinations: Pittsburgh Club.
Address by Representative from England.
Report: Joint Federation-Association Educational Committee.
6:00 P. M. Paint Show Closes.
6:30 P. M. Annual Dinner—Twenty-Five Year Club

Friday, November 5

8:00 A.M. Registration
9:00 A.M. Paint Show Opens

9:30 A.M. Alkyds in Exterior Paints for Wood: Montreal Club.
A Study of Primers for Ferrous Metals in an Atmospheric Exposure—Part IV: New England Club.
Part III—A Study of Color Change Tolerance. Correlation Color Change Tolerance, Color Fading: Louisville Club.
Activities of the Scientific Section: J. C. Moore.
Silicone White Baking Enamels: Chicago Club.

LUNCHEON

Materials Committee: W. P. Colio.
Study of the Stability of Yellow Pigments: Philadelphia Club.
Monoglycerides Preparation for making Modified Alkyd Resins: J. Petit, France.
A Study of Pigment Dispersion: New York Club.
Report of Foreign Activities: R. W. Matlack.
A Method of Determining the Hiding Power of Various Pigments: Toronto Club.
Spectrophotometry of Pigments: Los Angeles Club.

6:00 P. M. Paint Show Closes

Saturday, November 6

NEW CHEMICAL ENGINEERING DEVELOPMENTS IN THE PAINT INDUSTRY

8:00 A.M. Registration

9:00 A.M. Paint Show Opens
Manufacturing Committee: H. H. Shuger.
A Study of Factors Affecting Grinding Efficiency in Ball and Pebble Mills: Baltimore Club.
Design of a Modern Paint and Varnish Plant.
Materials Handling.
Proportioning Equipment.
Stationary Closed Kettles in Varnish Plants.

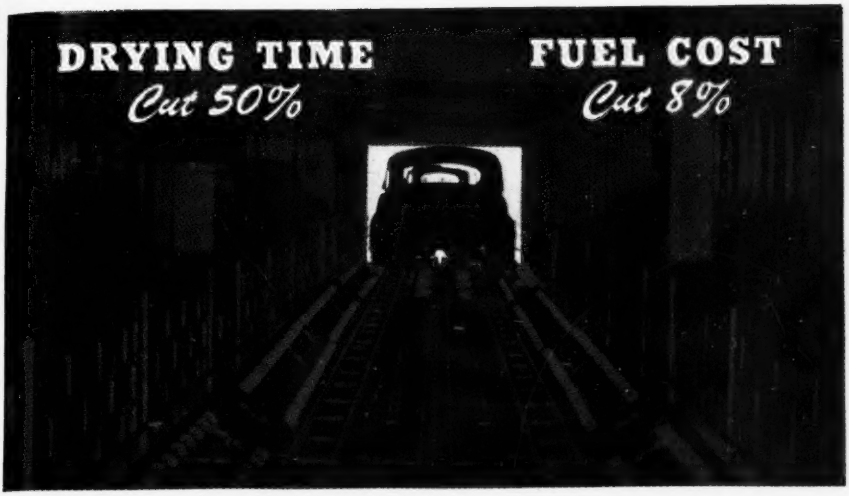
LUNCHEON

Fume Control in Varnish Manufacture
Pre-Mixing as it Affects Pigment Dispersion
Grinding in Ball and Pebble Mills
Filtering and Straining
Filling and Packaging
Resolutions and Announcements

4:30 P. M. Meeting Closes
Paint Show Closes

6:30 P. M. ANNUAL BANQUET, CONGRESS HOTEL—GOLD ROOM
Awards and Entertainment

10:30 P. M. Dance



NEWCOMB-DETROIT Radiant Oven *Improves* Auto Finishes

Newcomb-Detroit engineered, built and installed this oven for one of the Detroit automobile manufacturers over two years ago. Burdette radiant-type burners were used throughout.

Drying time is cut from 45 minutes to 19 to 22 minutes on each of three coats while fuel costs are reduced 8%. But most important to the auto manufacturer was the fact that the finishes are harder, more durable in all types of weather and even the most delicate colors are held uniformly. In addition, these burners bring the oven to heat almost immediately which eliminates the 2-hour *warm-up* period formerly required.

Newcomb-Detroit also installed the other radiant gas ovens for the entire system. Our engineers are at your disposal to discuss your finishing problems. Write today.

EST. 1912

NEWCOMB-DETROIT

Engineered Systems—Standard Units

Spray Booths • Ovens • Metal Parts Washers • Fans
Dust Collectors • Heaters • Air Handling Equipment

Grand Rapids Div.—Plant **GRAND RAPIDS 2, MICH.**

Main Office and Plant **DETROIT 11, MICH.**

Western Sales **CHICAGO 5, ILL.**

Ladies' Program

Wednesday, November 3

2:00 to 5:00 P. M. Registration

Thursday, November 4

8:00 to 5:00 P. M. Registration
2:00 P. M. Tea and Bridge

Friday, November 5

8:00 to 5:00 P. M. Registration
1:00 P. M. Luncheon and Fashion Show, Marshall Field & Co.
3:00 P. M. Radio Show—Hint Hunt

Saturday, November 6

6:30 P. M. Ladies' Banquet
10:30 P. M. Dance

List of Exhibitors; Paint Industries Show

Abbe, Inc., Paul O.
Advance Solvents & Chemical Corp.
Ambrose Company, C. M.
American Cyanamid Company
Anderson-Prichard Oil Corp.
Archer-Daniels-Midland Company
Bakelite Corporation
Baker Castor Oil Company
Barish & Company, Louis M.
Binney & Smith Company
Burt Machine Company
Central Soya Company, Inc.
Chrisholm-Ryder Company
Cornelius, Theodore
Day Company, J. H.
Durez Plastics & Chemicals, Inc.
Elgin Machine Company
Epworth Manufacturing Company
Falk & Company
Ferro Chemical Corporation
General Electric Company
Geuder Paeschke & Frey Company
Goodyear Tire & Rubber Company
Hercules Powder Company
Hy-R-Speed Incorporated
Inland Steel Container Company
Libby, Owens, Ford Glass Co. Plaskon Div.
Litter Company, Inc., D. H.
Litter, H.
Minnesota Mining & Mfg. Company
Morehouse Industries
National Lead Company
Neville Company
Newport Industries, Inc.
Nuodex Products Company
Patterson Foundry & Machine Co.
Plaskon Div. — Libby, Owens, Ford Glass Co.
R. B. H. Dispersions
Reichhold Chemicals, Inc.
Resinous Products and Chemical Co.
Ross & Rowe
Shell Chemical Corporation
Sparkler Manufacturing Company
Spencer-Kellogg & Sons, Inc.
Stresen-Reuter, Fred'k. P.
United Distillers
U. S. Industrial Chemicals, Inc.
Wheeling Steel Corporation

Greater Economy with Lacquer!

Lacquer's unequalled drying speed, without special drying or baking equipment . . . its lower coat-for-coat cost . . . make for economies impossible with any other finish. *You can do it better with lacquer!*

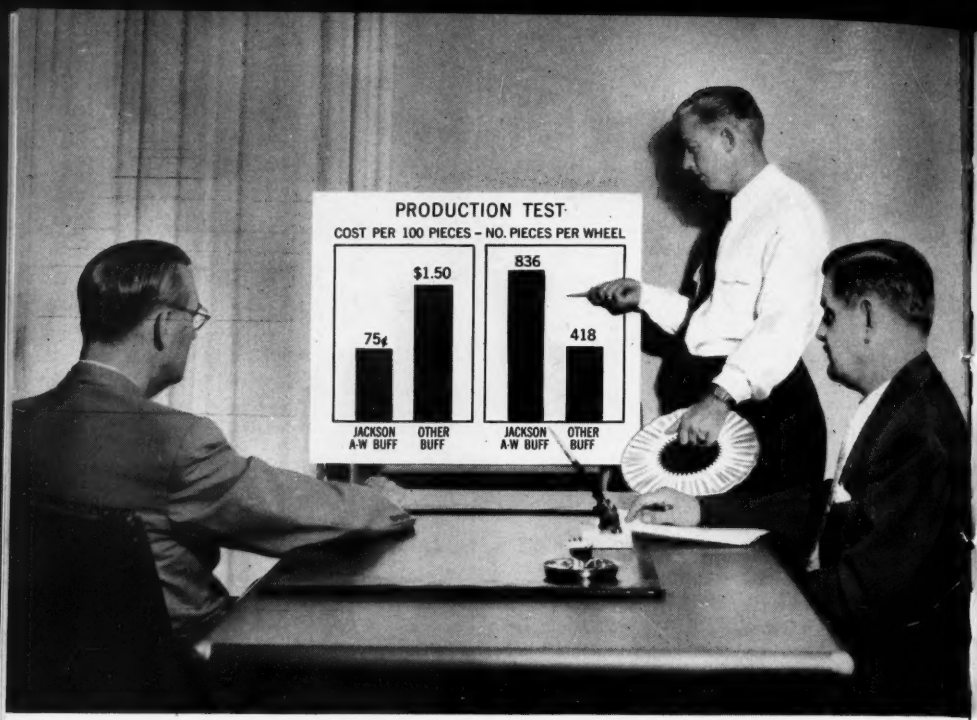
HERCULES POWDER COMPANY

INCORPORATED

927 Market Street, Wilmington 99, Delaware

CLS-5

Hercules does not make lacquers, only materials from which they are made. Consult your lacquer supplier.



"—and we saved 50%"

PRODUCTION FOREMAN ***Reports:*** "In buying cotton buffs without production tests, no conclusion could possibly be reached as to the merits of one product or the other."

PURCHASING AGENT ***Addressing the Production Foreman:*** "Did you find in your test on the buffs that I bought for you, any difference that would bring about a substantial saving to this company."

PRODUCTION FOREMAN ***Addressing the Purchasing Agent:*** "Yes. The chart speaks for itself. One of our regular buffing wheels buffed 418 pieces at a cost of $1.50 per hundred pieces. The Jackson Airway Ventilated Buff Wheel on the same job buffed 836 pieces at a cost of $.75 per hundred pieces.*"

PRESIDENT ***Addressing Production Foreman and Purchasing Agent:*** "Your statement is that we will save 50%. That's good news to me in the face of today's rising production costs. It is apparent, and you have proved, that it is smarter to consider the final wheel cost and increased production rather than the initial cost of a section of buff. I shall presume that action will be taken immediately to use only the Jackson Airway Ventilated Buff."

** from an actual case history.*

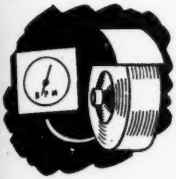
JACKSON

21-03 FORTY-FIRST AVE.

NOTE THESE EXCLUSIVE FEATURES:

HALF AS MANY SECTIONS

Jackson Airway Ventilated Buffs have more material per section . . . are twice the width of conventional buffs. You buy half as many sections.



RUN AT HIGHER SPEEDS

Destructive internal heat generated at high speeds is eliminated entirely by the exclusive Jackson Airway Ventilation feature.

WILL NOT BURN

Ventilated side plates and internal center plates provide maximum air channels, prevent burning entirely . . prolong wheel life.

WILL NOT RAVEL

Cut on the bias, these buffs cut faster, work cleaner . . . are free from raveling and lint. Hold buffing compounds longer.

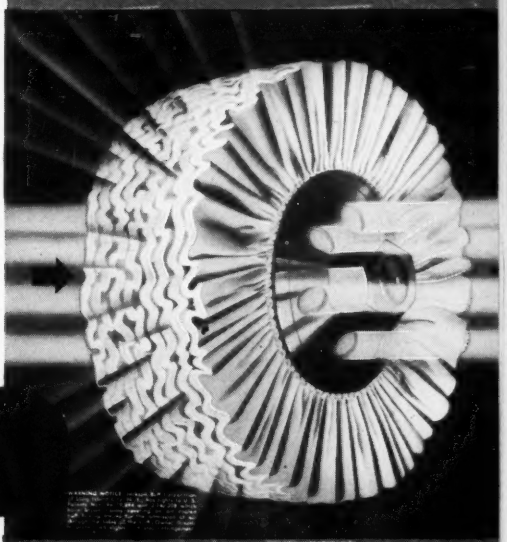
LONGER WEARING

The superior design and construction of Jackson Buffs adds hours of production time per wheel life . . . at lower wheel costs.

Jackson Airway Ventilated Buffs are available to meet your particular buffing requirements on all metals and most plastics. We will prove our claim of a 50% Saving on your equipment. Write, wire or phone for a demonstration.

JACKSON AIRWAY *Ventilated* BUFFS *outwear and outperform other types of buffs*

Preferred **by men who use them, these buffs are faster cutting, cleaner and cooler running, will not ridge work, use less compounds, require less effort for better finish.** ***Preferred by*** **men who are accountable for increased production resulting in lower costs because they buff more pieces per wheel . . . cut buffing wheel costs 50%. Bring your buffing operation up-to-date . . . insist on longer lasting, money saving** ***Jackson Airway Ventilated*** **Buffs.**



BUFF CORP.

LONG ISLAND CITY 1, NEW YORK

A NEW BEHR-MANNING NAME FOR AN IMPROVED BEHR-MANNING FLOCK

~~STYLON~~

BEHRLON

BEHRLON®

MICRO-CUT FIBERS
BY BEHR-MANNING

To all of our industrial customers who have found new sales appeal for their products in the jewel-box beauty of Stylon finishes, we are pleased to announce the adoption of a new Behr-Manning family name for this product.

With the development of improved dyeing and processing techniques and the addition of six new standard colors, Behrlon brings to industry new quality, new beauty, new sales appeal and a new easy-to-remember Behr-Manning name.

Write for new Behrlon color card and booklet.

BEHR-MANNING · TROY, N.Y.
(DIVISION OF NORTON COMPANY)

IMPROVE YOUR TUMBLING... BURNISHING AND DE-BURRING WITH MAGNUS LUBRICANTS

Magnus lubricants and burnishing compounds, tried and proved in many plants, are recommended for these important operations.

TUMBLING is materially improved by the use of Magnus #25 for steel, Magnus #58-HL for brass, and Magnus #58 for aluminum or die cast parts.

BURNISHING — Magnus burnishing compounds develop high luster without over-heating or abrasion of parts, with faster burnishing and complete rinsability after burnishing. Usually only 4 oz. to 100 lbs. of work are required.

DE-BURRING — Instead of expensive, undependable grinding or filing, modification of tumbling technic plus Magnus De-burring Compound helps limit cut to projecting burrs, while surfaces that would otherwise tend to rub each other are protected from abrasion.

Investigate, too, the Magnus method of barrel de-scaling to remove, quickly and inexpensively, heat-treating scale from small parts.

Let the right Magnus material help solve your problems!

MAGNUS CHEMICAL COMPANY
208 South Ave., Garwood, N. J.
In Canada—Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que.
Service representatives in principal cities

Finishing Clinic

Significance of Stress in Electroplated Nickel

IN recent years there has been a growing realization of the importance of stress in the performance of electrodeposited coatings. Work in other fields has established that residual stresses may have a profound effect on many of the "physical properties" of the stressed material, and it has been necessary to devise means for measuring residual stresses in many machine elements with a high degree of accuracy. Although the existence of stress in electrodeposited metals has become an established fact, no quantitative methods for determining the magnitude of stress have, until recently, constituted a workable part of electroplating technique. Most platers will readily agree that stress and its relation to ductility has long been known to affect the serviceability of electroplated metals. Highly stressed electroplated coatings may be subject to peeling, cracking, blistering and the somewhat complex phenomena of stress corrosion. In order to study and control the stress in electroplates, a suitable means of measuring this property is required.

At the 35th Annual Convention of the American Electroplaters' Society, held at Atlantic City, Dr. Abner Brenner and Seymour Senderoff described the most recent development in stress measuring instruments. The instrument, developed at the National Bureau of Standards, is called the Spiral Contractometer, and was stated to be rugged enough that it could be hung in an operating plating tank and measurements taken on the site. At the preceding

RANSOHOFF

METAL CLEANING EQUIPMENT

FOR THE SURFACE TREATMENT OF METALS

When only small space is available and ONE MACHINE must serve many cleaning purposes . . .

THIS AUTOMATIC BATCH PROCESS CLEANING MACHINE

cleans surfaces after forging, stamping or forming prior to painting or plating.

• • •

ALL IN ONE BARREL:

automatic tumbling, cleaning, rinsing, pickling, soap roll and other operations.

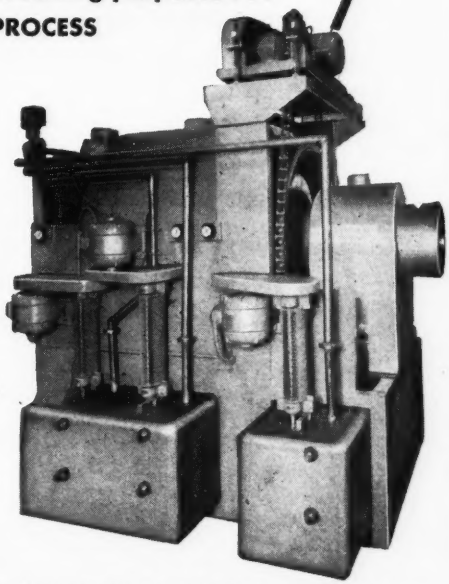
• • •

ANY SOLUTION CAN BE USED WITHOUT LOSS

• • •

Note what you get:

Controlled operation
No transferring loss
Low maintenance
Complete adaptability
No mixing
Improved finishes



WRITE FOR RANSOHOFF ENGINEERS TO GIVE YOU DETAILS

N. RANSOHOFF, Inc.

1311 TOWNSHIP AVE., CINCINNATI, OHIO

34th Annual Convention of the Society held last year in Detroit, there were two presentations on stress measurements in electrodeposits. K. G. Soderberg and A. K. Graham presented a fundamental discussion of the significance of stress in electrodeposits, with considerable data on stress in nickel

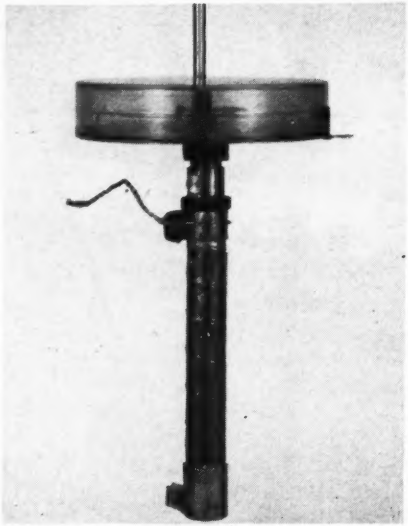


Fig. 1 — An instrument for measurement of stress in electroplated nickel
(Photo courtesy National Bureau of Standards)

deposits. In addition, W. M. Phillips and F. L. Clifton discussed experimental work carried out in the General Motors Research Laboratories on stress analysis of electrodeposited metals, such as nickel, which work was prompted by a desire to increase the resistance of electrodeposited metals to failure in actual consumer utilization.

The Spiral Contractometer

According to Brenner and Senderoff, determinations of stress in electrodeposits have been performed in the past largely by measuring the deflection of a straight strip which has been plated on one side. The new instrument, designed for stress measurements, is known as the spiral contractometer and is based on a helix rather than a straight strip. Since the new instrument, illustrated in Fig. 1, requires no microscopes or auxiliary gages, and is also rugged and self-contained, it was described as being not only applicable to research work but to routine control as well.

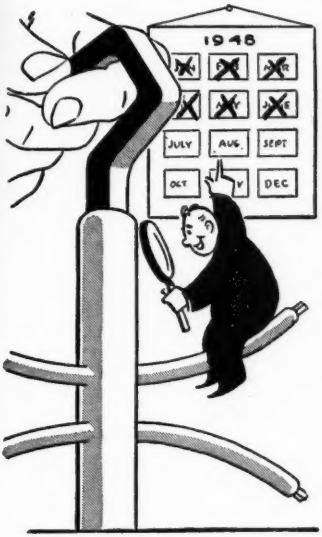
The validity of measurements using this new instrument was demonstrated by comparing the values of stress obtained through the use of the spiral contractometer with those obtained by measuring stress by different principles, and by a straight strip contractometer. Agreement was good in all cases. In simultaneous measurements in the same solution made with the spiral and strip contractometers, deviation between the two instruments was less than ± 3 per cent. In further tests, the instrument responded accurately to a dozen variables in solution composition whose effect on stress are fairly well established.

In earlier measurements of the stress of nickel deposits by the contractometer method, it was found that the stress decreased with increasing thickness of the deposit. Since this was not satisfactorily explained, according to Brenner and Senderoff, and since it was suggested that it might be a systematic error in the instrument, this was investigated in detail. It was found that the decrease in stress with thickness is real and that it is associated with the increase of grain size of the nickel deposit as its thickness increases.

Some of the advantages of the new stress measuring instrument, as compared with its predecessors, were cited by Brenner and Senderoff as outlined below:

1. Convenience. No auxiliary optical or other types of measuring

RACK COATING UPKEEP: ZERO!



NO BAKING FACILITIES? You still can have the advantages of Coating 218. Let us recommend a nearby applicator who'll be happy to process your racks.

A report on Unichrome Coating "218" shows no maintenance in 6 months!

In an Ohio plant, racks on a nickel line, which included an extra severe cleaning cycle, gave this plater money-saving evidence of Coating 218's service life. For 6 months, maintenance work—always a big item—had dropped off to nothing, with the original racks still giving good service!

Have *you* tried and compared this advanced type of rack coating to see the savings possible with it? Many well-known companies everywhere, who did, have made it their standard coating. Unichrome Coating 218 has 100% solids. On baking, it forms a heavy, elastic coating that withstands rough handling and severest plating cycles. Write for full data.

UNICHROME

Trade Mark Reg. U. S. Pat. Off.

RACK COATINGS—Products of

UNITED CHROMIUM, INCORPORATED • 51 E. 42nd St., New York 17, N.Y.

Detroit 7, Mich. • Waterbury 90, Conn. • Chicago 4, Ill. • Dayton 2, Ohio • Los Angeles 13, Cal.

equipment are required. The measurement of deflection is taken from a dial on the instrument. The instrument is hung in an operating plating tank and measurements are taken on the site.

2. Sensitivity. The length of strip which may be conveniently used when wound as a spiral is 4 to 8 times that usually used in the straight-strip instruments. This causes a greater deflection for a given change in curvature. The deflection can be conveniently magnified to any desired degree by the gear system of the instrument.
3. The measurements are made at the plating temperature, thereby eliminating thermal errors.
4. The use of a coiled strip greatly reduces or eliminates errors caused by transverse bending.
5. The instrument can be easily calibrated, thus permitting simpler calculations and eliminating errors due to variation in the physical properties of the spiral.

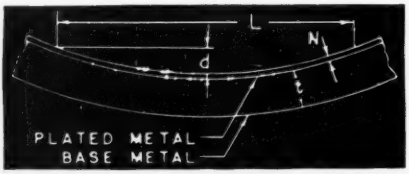


Fig. 2—Schematic diagram outlining dimensions of test strip after plating (*Courtesy Proc. Am. Electroplaters' Soc.*)

Stress In Nickel Deposits

Phillips and Clifton concluded, as a result of experiments carried out in the General Research Laboratory, that when a composite plate of copper, nickel and chromium fails as a result of high tensile stress, evidence is that most of the stress exists in the nickel plate. Since the tendency of highly tensile stressed nickel is to accelerate the rate of plate failure, it is important that plating be carried out under the conditions which will hold the stress to a minimum value. This can be accomplished by maintaining the pH of the bath at its lowest operating value, using the maximum temperature, carefully controlling addition agent concentration, and taking due care to have a clean and pure (free from metallic or organic contamination) bath at all times.

Quantitative measurements of stress were required as a basis for the above practical plating room recommendations. These were made by plating a metal strip on one side only. If stress existed in the nickel, the strip bowed, and the bending produced in the metal strip was considered analagous to a uniform bending moment in a simple beam. Referring to Fig. 2, a practical formula was derived for calculating the plating stress, where plating was carried out on a phosphor bronze strip having a length of 1.25 inches. The derived formula which was used is $S = 21.2 \times 10^6 \frac{t^2 d}{N}$ where "t" is the thickness of the test strip, "d" is the deflection of the strip due to plating, and "N" equals the thickness of the plated area. The change in deflection due to the resulting curvature of the plated strip was measured by means of a dial indicator mounted between two knife edges. Thickness of the plate was determined by dividing the weight of the plated metal per unit area by its density. A special jig, whereby the metal strip to be plated was placed against a non-conductive Lucite backing plate, was used. Another Lucite plate was placed on top of the test piece, constructed to permit plating to take place in an area $\frac{3}{16}$ inch wide and $2\frac{5}{8}$ inches long, and also to minimize edge effects.

IN A CLASS BY ITSELF . . .

Metex

FILTER POWDER

One filter powder for both cyanide and bright nickel filtering—contains no soluble material to dissolve in plating solutions causing roughness—holds a more permanent filter cake—leaves filter bags or cloths soft and fluffy thereby increasing their life—easier to backwash and remove—can be used for all type filters.

MacDermid Incorporated
Waterbury 88, Conn.
Gentlemen:

Please send me
- Metex Filter Powder Data Sheets
- New Compounds Folder
- Have your Service Engineer Call

Name.....Title.....

Firm Name.....

City.....Zone.....State.....

MAC DERMID
★ Incorporated ★
WATERBURY 88, CONNECTICUT

SEND THE COUPON WITHOUT DELAY AND OBTAIN FULL INFORMATION

Other Factors Influencing Stress in Nickel Plates

Phillips and Clifton found in their work that the effect of hydrogen embrittlement was negligible in stress calculations. This was determined by making stress analysis measurements on steel strips, plated with nickel, immediately after plating; following this, some of the steel strips were heat treated and others allowed to remain at atmospheric conditions for thirty days. These treatments were found not to appreciably alter the initial plated stress. Experimental work also showed that no measurable stress resulted from electrolytic cleaning or acid pickling.

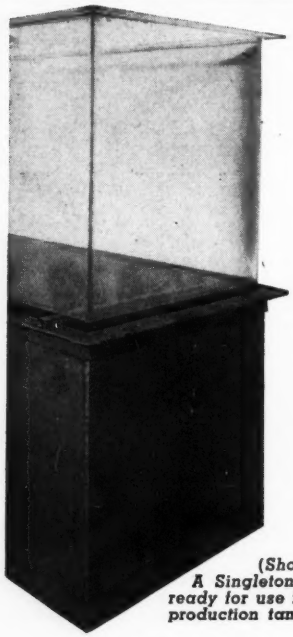
In general, it was found that the current density used, within the range 20 to 50 amp./sq. ft., had no appreciable effect on the ductility of the nickel deposit; likewise, varying the thickness of the plate up to 0.002 inch was found to have little effect.

Stress Based On Curvature Measurements

In a fundamental paper presented before the preceding 34th Annual Convention of the Electroplaters' Society, Soderberg and Graham discussed data on stress in nickel plating baths based on measurements of the curvature produced in a flat metal strip. In the method proposed, a flat base metal strip, 3 inches long, ½ inch wide, and a few mils thick, is fastened against a flat glass strip. The complete assembly is then subjected to a suitable cleaning cycle and immersed vertically in the plating bath, and an anode placed in front of it to a depth which will give a uniform plate distribution on the strip from the bottom to the top.

Stress Effects

The experimental data reported by Soderberg and Graham, based on the above method, showed that the chlo-



(Shown) A Singleton Liner ready for use in steel production tank.

Your tanks last a lifetime

with Singleton Hi-temperature Lucite Liners* . . . permanent protection for all plating, processing

Fit *all* your tanks, new and used, with Singleton H-T Lucite Tank Liners! Sensational, proven performance, unequalled throughout the industry. They resist all acids, alkalies, even super-active mixtures at 220° F. No contamination, no deterioration, no current losses. Leakproof and shatterproof. Lightweight for easy handling, machineable for utility.

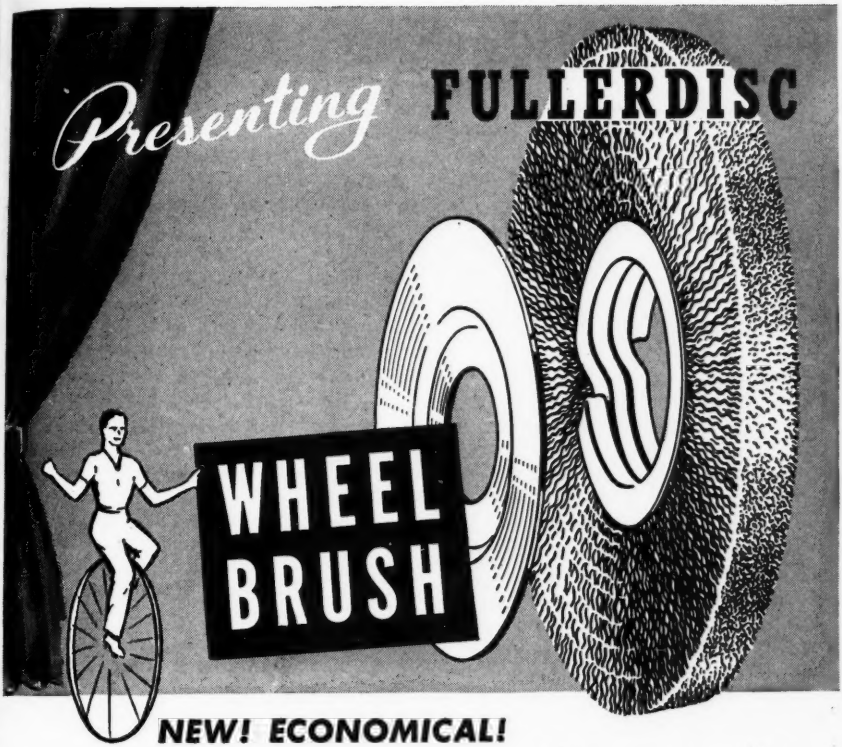
Lab Tanks, Cells Baskets, Buckets Grids, Racks, etc.

All Singleton-Welded Products are made of H-T Lucite. Each introduces an entirely new standard of high performance—finest of its kind in the field. No other products are comparable. Today, Singleton-equipped plants enjoy greater returns on equipment investments than ever before.

* *Write for Bulletin and Price List.*

SINGLETON COMPANY

9823 Lorain Ave. ★ Cleveland, O. ★ WOodbine 9056



NEW! ECONOMICAL!

Fullerdisc cuts costs because you replace *only* the brush unit. No expense for adapters. They're built right into the heavy gauge, cadmium plated side-plates . . . and you buy side plates *only once.* Easy to install . . . fits all shaft diameters from ½" to 1".

Fullerdisc single sections are wider — a full inch wide — resulting in longer brush life and a lower cost for multiple section brushes.

Available in diameters from 5" to 9" and in a choice of materials to provide for the varied requirements of scratching, deburring, polishing, buffing, and coloring. For complete details and specifications send for new folder "Fullerdisc Wheel Brushes". Write to . . .

THE FULLER BRUSH CO.

INDUSTRIAL DIVISION • 3626 MAIN ST. • HARTFORD 2, CONN.

Unretouched illustration shows die cast plumbing fixture; at left before, and at right after Roto-Finish de-burring and finishing.

Roto-Finish processes quickly, uniformly, and accurately, enormous quantities of intricate castings and precision parts of steel, brass, aluminum, magnesium, stainless and nickel steels. One operator handles several Roto-Finish machines, allowing a tremendous saving in costs. Send samples for processing. (Include finished part for guide.) No obligation.

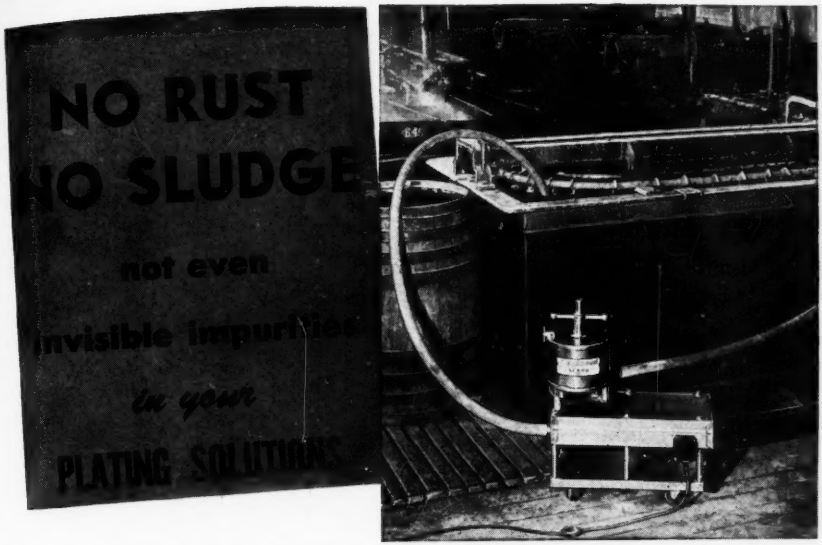
THE STURGIS PRODUCTS CO.
435 JACOB ST., STURGIS, MICHIGAN

ride ion had a definite stress-raising property in nickel solutions. Certain addition agents were reported to greatly reduce the stress in both Watts type and fluoborate type deposits.

It was noted that the lowest stress values obtained were independent of whether copper or steel was used for base metal. It was also found that a hard deposit is not necessarily highly stressed and a relatively soft deposit may be quite highly stressed. The data collected also showed that internal stress as well as hardness may or may not be altered by a change in current density or temperature, and if a change takes place in hardness in a certain direction, the stress may change in any direction or not at all. In other words, it was brought out that there is no predictable relationship between hardness and internal stress.

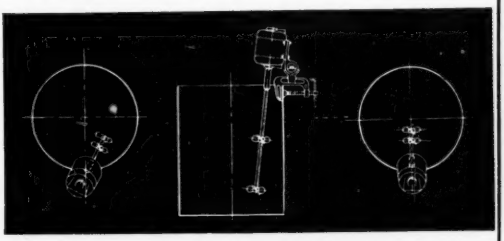
Corrosion Resistance

It was brought out by Soderberg and Graham that recent observations indicate that internal stress may cause not only gross cracking, recognized as such, but also fine check cracks which in the past have been looked upon as pores in the deposit. Although the mechanism of cracking and the relation between stress in electrodeposits and their performance is not yet fully understood, two explanations have been offered. The first of these is stress corrosion; s t r e s s corrosion exists when the unstressed metal does not lose strength under the corrosive influence while the stressed metal does. The second explanation is stress concentration. It was pointed out by Soderberg and Graham in their work that the measurement of internal stress records average values for the tested specimen. With brittle materials, the stress concentration is a serious factor and weakens the piece directly, but with more ductile materials, under ordinary static loading, the material



With a "*Sealed-Disc*" Filter to keep them *Bright and Clean*

Your finished work is finer and more uniform, your rejects less, you get longer service life from your solutions. All these are benefits and advantages reported by platers, users themselves of *"Sealed-Disc"* Filters. Regardless of the size or type of your installation, there's a *"Sealed-Disc"* Filter to "fit your job" and you can be sure of superior results. Write for complete information or contact your regular plating supplier.



Showing mixing angles easily positioned with our portable, quickly adjustable clamp designed for rim mounting to your containers.

ALSOP
ENGINEERING CORPORATION
Filters · Filter Discs & Sheets · Mixers · Agitators
310 Keen Street Milldale, Connecticut

ALSOP
"*Hy-Speed*" Mixers
for every liquid mixing job

We manufacture a full line of Mixers and Agitators for specific mixing, blending and dissolving requirements. Easy to mount, portable types for attaching to your containers. Complete units with Tank and Mixer also available in a wide range of capacities. Write for complete details.

flows sufficiently to eliminate, in part or entirely, the weakening due to stress concentration.

Phillips and Clifton found that steel base panels plated with highly stressed nickel, in the composite copper, nickel, chromium coating, when subjected to salt spray tests, would fail with innumerable minute cracks after 144 hours' test. It was reported that an increase in the chromium thickness on these composite coatings accelerated the rate of failure. Heat treatment was found to improve the corrosion resistance and greatly lessen the cracking encountered.

* * *

Material Control in Organic Finishing

CONTROLLED finishing in an industrial finishing room should be interpreted by the production man to include material control of such factors as: (a) viscosity, (b) mixing and delivery, (c) control of fluid pressures and air supply, (d) control of film thickness and spray equipment. One definite advantage of testing and controlling finishing materials before their use is that the information obtained from the inspection tests is of great assistance in diagnosing the troubles in production which occur in every finishing department. With reasonable assurance that the finishing materials were received in satisfactory condition, immediate attention can be given to the things which may have gone wrong in the preparation of base metal, and the application or baking operations.

It is important that all mixing rooms be equipped with a viscosity cup or some means of metering the viscosity of finishing materials to be supplied the spray operators for application. It is known that each material has a certain viscosity which is considered as the best point of flow; possibly a temperature standard has also been recommended for best application of the material and for highest quality of finish.

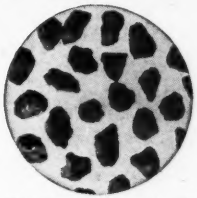
Some metal finishing materials are shipped at a heavier consistency than that at which they are to be used. Such materials must be thinned or reduced before use; it is important that they be thoroughly mixed before beginning the thinning operation. The thinner should be added slowly, stirring the paint vigorously to insure thorough incorporation of the thinner. If the material is thinned too much, its hiding capacity may be impaired. It may have a tendency to run or sag; consequently, the best possible material control should be set up to hold materials at their proper viscosities and to use the type and quantity of thinners recommended by the manufacturers.

There have been cases, in the application of synthetic enamels, in which the proper thinner was not used, and

START RIGHT!
INSURE A PERFECT FINISH
DETROIT
Handy 'Tac' Rags
(Trade Mark Reg.)
Remove all Dust, Lint and Sand Particles from the Surface before Finishing.
Successfully used by leading Industrial Plants for over 11 years.
If your local Paint Dealer cannot supply you, write to Manufacturer.
DETRO MFG. & SALES CO., INC.
414 NORTH SAN PEDRO ST.
LOS ANGELES 12, CALIFORNIA

EXOLON IS THE ABRASIVE FOR *FAST METAL POLISHING*

ACCURATE GRADES... IRON PARTICLES REMOVED



Photomicrograph of Exolon RST Polishing Grains.

Exolon Aluminum Oxide Abrasives are available for polishing all types of metals.

The special production facilities at the new Exolon plant provide unsurpassed uniformity of grading (size and shape) in all standard sizes; assuring fast and satisfying polishing results.

Due to its greater freedom from magnetic particles, Exolon is a more efficient grain for polishing stainless metals...a safer material to use since ferrous materials will not become embedded in the surface. Write for Exolon's folder on polishing procedures and recommendations.

THE EXOLON COMPANY

943 E. NIAGARA ST. TONAWANDA, N. Y.

Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

the resulting finish had a sandy appearance. The finishing room technologist may seek to explain the difficulty by saying that the pigment was not properly ground, but chances are that if the proper thinner had been used, all of the small pigment particles would have dissolved. Thus, the production man should take great care to see that the man in charge of mixing of material is instructed in the proper care and cleaning of equipment, the principles of straining of material, and why viscosities must be maintained. Where there are several manufacturers' materials in use, it should be emphasized to the personnel in the mixing room that the thinner corresponding to the material mixed should always be used.

Most production men realize that paint should not be stored for a greater length of time than is absolutely necessary; a practice should be set up of using the oldest stock first. Storage space should be maintained at a temperature of at least 70°F., and material stored at a lower temperature should be brought into warm surroundings several days before making necessary adjustments for the production line.

Mixing room control should be such as to ensure uninterrupted production shedules, and to prevent shut-downs due to dirt in materials with consequent spray gun troubles, rough finishes resulting from improper viscosities, or other difficulties brought on by using wrong thinners, such as orange peel, or improper drying. The delivery of clean, fresh, uniformly mixed materials through pipe lines to the spray guns makes for better working conditions, and a higher production rate of quality finishes.

* * *

Preventing Excessive Trivalent Chromium Formation in Chromium Plating

GENERALLY, chromium plating is applied to articles that permit the use of a relatively large ratio of the anode to cathode area. Under these conditions the concentration of trivalent chromium is relatively low when equilibrium is established between (1) reduction of hexavalent to trivalent chromium at the cathode, and (2) oxidation of trivalent chromium at the anode. However, some types of chromium plating may involve a smaller area of the anode than of the cathode, such as, for example, plating on the inside of tubes or cylinders. Under these conditions, the concentration of trivalent chromium may become very high, building up to an objectionable level, and its control may become important.

A study has recently been carried out at the National Bureau of Stand-

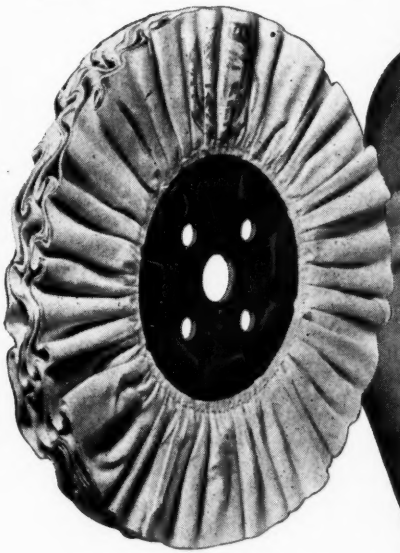
THE
VARNISH PRODUCTS CO.
MAKERS OF
CEL-U-LAK Lacquers and Enamels
FORM-A-ROC—alkyd-amine enamels
ALSO
Bronzing vehicles, adhesives and other specialties for the industrial finishing of wood, metal, ceramics and plastics.
5206 HARVARD AVENUE
CLEVELAND, OHIO

LONGER BUFF LIFE and GREATER PROFITS

with CODMAN'S new REAL-VENT Ventilated Non-Fray Buff. Deep ventilating channels in the revolutionary thin-pressed center of the REAL-VENT will not break down even under abnormal tightening pressures, and the new "thin center" allows a denser face. These great features add up to longer, more efficient buff life.

Investigate the real possibilities of increased production in your plant with CODMAN'S REAL-VENT Ventilated Non-Fray (open, or closed face) Buffs.

*CODMAN'S REAL-VENT Ventilated Non-Fray Buff is made under patent numbers 2,027,863, 2,094,650, 1,573,961; Re. 19,894; 2,140,208. Other patents pending.



F. L. & J. C. CODMAN CO.

ROCKLAND, MASSACHUSETTS

Detroit, Los Angeles, Philadelphia, Grand Rapids

ards to determine the optimum conditions for re-oxidizing trivalent chromium electrolytically, and the findings were reported by Robert Seegmiller and Vernon Lamb before the 35th Annual Convention of the American Electroplaters' Society, recently held at Atlantic City.

The variables investigated included sulfate concentration, current density, temperature, chromic acid concentration, trivalent chromium concentration, and electrode material. From a practical standpoint, a high temperature was found to be the most important factor favoring conversion of trivalent to hexavalent chromium. Thus, by using a low anode current density (2 amp./dm²) and a high cathode current density (60 amp./dm²) at 176° F., the net oxidation efficiency in a cell without a diaphragm was 92 per cent, while under similar conditions at 122°F. the net oxidation efficiency was 50 per cent, and at 60°F. it was only 15 per cent. This increase in net efficiency at the higher temperatures is shown to be mainly the result of decreased reduction efficiency at the cathode at high temperatures. Use of the recommended conditions should simplify the problem of controlling the trivalent chromium concentration.

* * *

Properties of Anodic Coatings on Aluminum

CERTAIN properties of anodic coatings on aluminum which are of interest to the production man dealing with this type of finish on aluminum articles were discussed by D. M. McLachlin and H. P. Godard, Aluminum Laboratories, Ltd., Kingston, in a recent issue of Canadian Chemistry and Process Industries (February 1948). Although many commercial baths have been proposed for anodizing of

for Efficiency and Economy... use

NAZ-DAR ROLLER COATING MACHINE

New Improved Model For Printing Flat Sheets

With this machine the coating is deposited at great speed, with perfect uniformity and with more economy than is possible by any other method. Almost any rigid or semi-rigid sheet material may be coated such as cardboard, wallboard, metal, wood, glass and heavy paper. A machine of this type will quickly pay for itself in material and time saved.
Paints, varnishes, lacquers, enamels, synthetics or any type of finishing material may be used.

Write for folder giving complete information, data, etc.

The NAZ-DAR COMPANY

469-483 MILWAUKEE AVENUE PF10-48 CHICAGO 10, ILLINOIS

Your painted metal product should be BONDERIZED

This paint-holding, corrosion-resistant coating keeps fine paint finishes looking better longer

Your customers expect your product to look as good as it is. The best product in the world can acquire a second-rate reputation if its paint loosens and peels, its metal surfaces become rusted and corroded, and its whole appearance deteriorates rapidly in service.

Bonderizing under the paint anchors the final finish to the metal, stoutly resists corrosion, minimizes damage from the nicks and scratches unavoidable in daily use, preserves paint and paint appearance.

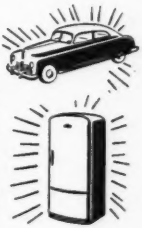
BONDERIZING IS ECONOMICAL

The Bonderizing process which adds this important value to your product is engineered for economy as well as efficiency. Even on the largest products, chemical cost of Bonderizing is figured in pennies. Compared with the paint finish it protects and preserves, the cost of Bonderizing is amazingly small.

BONDERIZING IS THE STANDARD

For dependability, uniformity of results, efficiency, simplicity of operation and ease of control, Bonderizing sets the standards—and then keeps raising them! This process, constantly improved through twenty years, has a record of successful applications almost as broad as the metal working industry itself.

USED UNDER FINEST PAINT FINISHES



For many years, most automobiles have been Bonderized before painting. Bonderizing guards the appearance of refrigerators and washers and metal cabinets and scores of other appliances which must keep their good looks through years of service. Bonderizing protects transformer cases, too, and lawn mowers and steel windows and many other products which must withstand severe conditions.

YOUR CUSTOMERS KNOW ABOUT BONDERIZING

National advertising has made Bonderizing and its benefits a valuable sales feature which you can use to advantage. When you say, "It's Bonderized," you assure your customers that your product will look better longer. Bonderizing is the one process of its kind *well known by name* to the consumer.

LET US TELL YOU THE COMPLETE STORY OF BONDERIZING AND HOW IT CAN ADD VALUE AND APPEAL TO YOUR PAINTED METAL PRODUCT

Bonderite, Parco, Parco Lubrite—Reg. U. S. Pat. Off.

Parker

PARKER RUST PROOF COMPANY
2172 East Milwaukee Ave.
Detroit 11, Michigan

BONDERIZING Holds Paint to Metal . . . PARKERIZING Inhibits Rust . . . PARCO LUBRIZING Retards Wear on Friction Surfaces

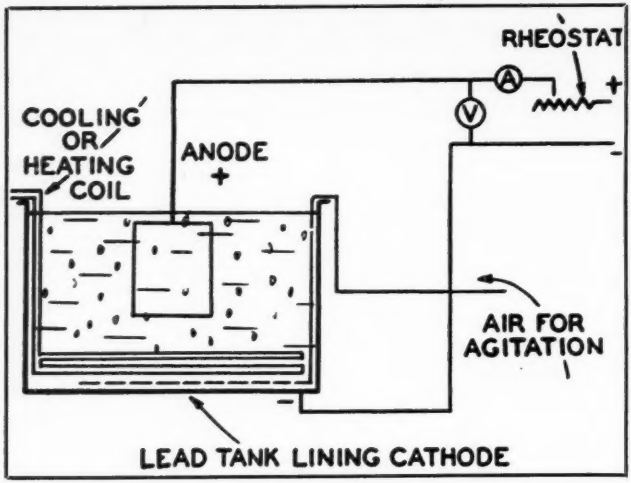


Fig. 3—Sketch showing general arrangement of circuit and tank for anodizing aluminum. (*Courtesy Canadian Chemistry & Process Industries*)

aluminum only a few have found commercial application. Thus, acccording to McLachlin and Godard, commercial anodizing in Canada and the United States is confined to three or four electrolytes. The boric acid process is used to produce anodized condenser foil. One of the main applications of the chromic acid process was described as the protection of aircraft parts. It was stated that the sulfuric acid film is generally three to four times as thick as the chromic acid coating and consequently more resistant. In addition, the sulfuric acid film is usually clear, while the other is generally gray. Shown in Fig. 3 is the general arrangement of circuit and tank for anodizing aluminum.

Thickness

The main factor influencing film thickness is the amount of electricity consumed per unit area which may be expressed as ampere-minutes per square foot. Temperature, the composition of the electrolyte, and the composition of the aluminum alloy, also, according to McLachlin and Godard, affect the thickness of the film obtained in a given time. Tests carried out by anodizing commercial purity aluminum, showed that at 80 deg. F., the thickness of the film increased regularly for about the first 50 minutes to 0.7 mil, after which it remained constant; however, at 90 deg. F. the thickness curve flattened off at only 0.4 mil, while at 100 deg. F., it was reported that the maximum was reached at 0.25 mil.

Dimensions

Since aluminum oxide has more bulk than aluminum itself, the conversion of a surface layer of metal to the oxide increases the dimensions of the article. However, with longer anodizing times, as pointed out by McLachlin and Godard, the overall dimensions may decrease due to dissolution of the oxide at a rate faster than it is being formed.

Appearance

It was pointed out that on aluminum of 99.95 per cent purity, the film is transparent, but for metal of lower purity, such as 99.2 per cent, the film is not nearly as clear because it contains particles of constituents and their oxidation products. When alloying elements are added to aluminum the anodic coatings assume characteristic colorings.

Hardness and Abrasion Resistance

Although the oxide is thin, McLachlin and Godard report that it is ex-

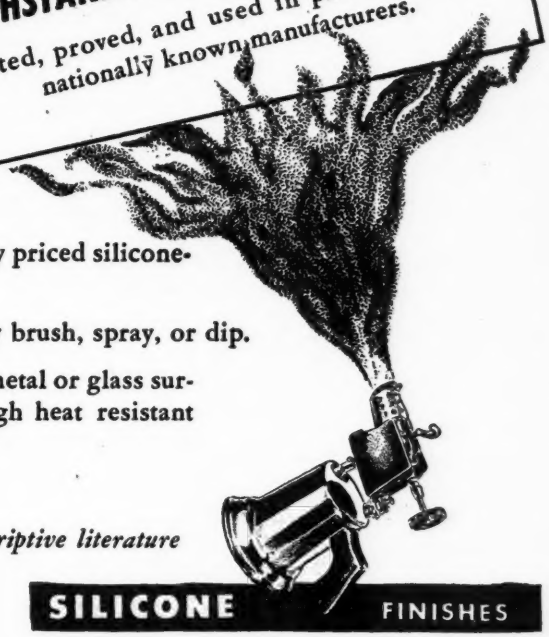
NEW SILICONE-BASE ALUMINUM

Mico

FIRST LOW-COST SILICONE-BASE FINISH

WITHSTANDS 1000° F. TEMPERATURE

Tested, proved, and used in production by nationally known manufacturers.



- FIRST commercially priced silicone-base coating.
- EASILY APPLIED by brush, spray, or dip.
- SUITABLE for any metal or glass surface requiring a high heat resistant protective coating.

Write today for descriptive literature

SILICONE FINISHES

Midland

DEPT. J-2 **INDUSTRIAL FINISHES CO.** WAUKEGAN ILLINOIS

tremely hard and resistant to abrasion. A blow, or pressure applied by a sharp point or edge, will break the coating due to the yielding of the metal underneath, but under ordinary conditions its hardness is remarkable, being comparable to that of Topaz which is 8 in Moh's scale of hardness. The resistance of the oxide coating to abrasion can best be measured by allowing a blast of air and abrasive to impinge on the coated surface and measuring the quantity of abrasive required to cut through the coating. It was found that the resistance to abrasion is approximately proportional to the thickness of the oxide film.

Heat Stability

Although aluminum oxide is very stable to heat, due to the fact that the underlying metal has a greater coefficient of expansion, fine cracks were reported to appear in the film when coated articles are heated to 300-400 deg. F. However, data are available which show that these cracks do not appreciably reduce the resistance of the film to corrosion.

Resistance to Salt Spray, Weathering, and Chemical Environments

Committee B-7 of the American Society For Testing Materials initiated a program in 1941 to determine whether or not a relationship existed between the salt spray resistance of anodic coatings and their resistance to weathering. The general conclusion was drawn that early failure of an anodic film, when exposed to salt spray, indicates inferior protective quality. However, with coatings that withstand more than one hundred hours' salt spray only an approximate correlation can be expected. Hence, it may be surmised that the salt spray test can only be used to eliminate low quality coatings produced by anodizing processes.

MODERN

SPRAY BOOTH

OPERATION AND CONTROL

CHEMCO BOOTHCOTE— Non-Inflammable — Water soluble boothcoating. Easy to apply—just spray or brush on, does not dry hard. Adapted for all type enamels, lacquers and prime coats. Saves man hours in application and cleaning, overspray may be peeled from paint booth walls in sheets.

CLEARWASH—compound for water curtain spray booths. Prevents over-sprayed paint, lacquer and enamel from coating back boards and baffle plates. Keeps pipe lines, sprinkler heads and reservoirs free of clogging and corrosion—chemically controls hard water. Economical to use due to extremely low using concentrations. Eliminates down time for tank cleaning and pump disassembly.

ALKALENE—for periodic cleaning of water curtain spray booths. Cleans pipe lines, sprinker heads in matter of minutes. Easy to apply—gives quick and complete cleaning. Economical to use due to low using concentrations.

SAMPLES AND FURTHER INFORMATION SUPPLIED ON REQUEST.

Chemco Products Company, Inc.

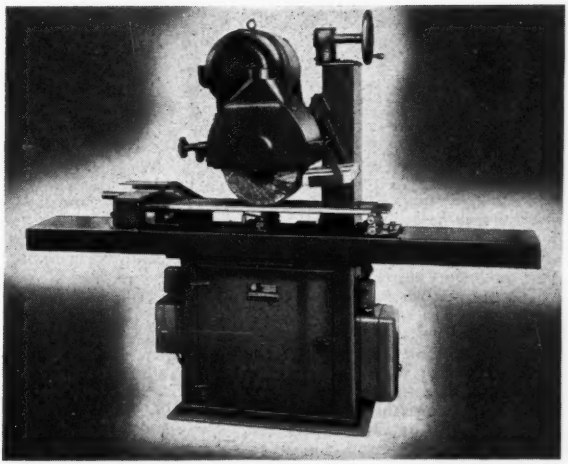
1059 East 76th Street — Chicago 19, Illinois

ROTARY AUTOMATICS • SEMI-AUTOMATICS • STRAIGHT LINE AUTOMATICS

• FOR HIGH PRODUCTION POLISHING AND BUFFING •

ROTARY AUTOMATICS • SEMI-AUTOMATICS • STRAIGHT LINE AUTOMATICS

ACME SQUARE TUBE *Polishing and Buffing Machine*



The ACME Square Tube Polishing and Buffing machine illustrated above is one of many ACME developments designed to handle polishing and buffing jobs on a production basis at low cost per unit.

It is equipped with an automatic indexing head which indexes to 45°, 60° or 90° enabling it to polish and buff octagon, hexagon or square tubing as well as round or oval tubing.

The indexing head may be removed, leaving a flat table with a maximum 48" stroke for mounting small flat parts for polishing and buffing in a manner similar to handling on a surface grinder.

The buffing head may also be equipped with attachment for utilizing polishing belt.

SPECIAL MACHINERY AMC AUTOMATIC BUFFING MACHINES

ACME *Manufacturing Co.*

1645 HOWARD ST. DETROIT 16, MICH.

Builders OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR OVER 35 YEARS

NEWS of the Industry

NEW PLANTS

The world's largest electric range plant, incorporating revolutionary mass production techniques occupying one million square feet of manufacturing space, has been opened for formal operations by **HOTPOINT, INC.**, Chicago 44, Illinois.

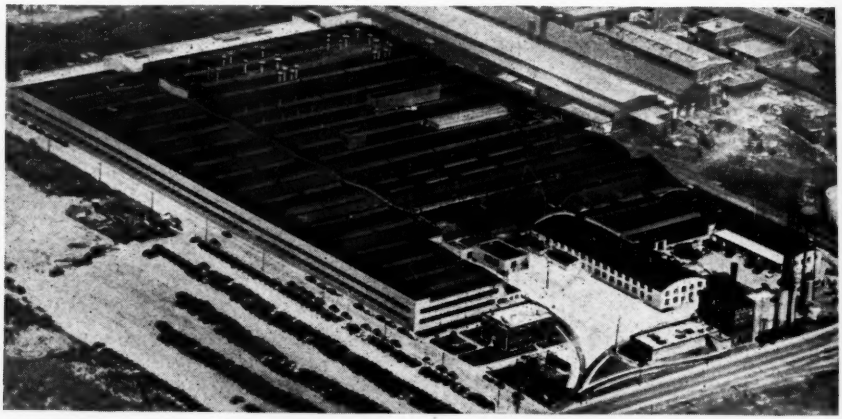
James J. Nance, president, stated that the new plant has a rated capacity of 600,000 ranges a year, and now is producing the industry's newest development in electric cooking—the push-button electric range. Mr. Nance addressed a group of Chicago industrial and civic leaders who attended dedication ceremonies observing the plant's formal opening.

The beginning of formal production in the plant marks the completion of "the greater Hotpoint program," which required an investment of more than $20,000,000 in manufacturing facilities.

All machinery is single-purpose type designed to speed production in assembly line operations similar to those which made the automobile a standard American commodity. Materials received at the eastern end of the plant flow westward along sub-assembly lines and emerge from conveyors in the warehouse as the finished product, ready for crating and shipping.

The new plant is a model of streamlined production flow with overhead conveyors which channel range sub-assemblies and parts to four main range assembly lines. These four assembly lines have been designed for maximum flexibility in changing from one model to another without interrupting the plant's overall output.

Finished ranges, after passing inspection stations on the final assembly lines, are lifted by elevator to overhead conveyors, and then proceed to the warehouse for crating and shipping. At peak



A view of the new Hotpoint range plant. The new factory, located on an 18-acre tract, is equipped with specially designed single-purpose machinery and processing facilities. Nearly 7 miles of conveyors will assist the plant's 4,000 employees in setting new production records.

HIGH HEAT... "BAKED-ON" finishes?

Special high temperature "SCOTCH" Tapes answer the call once again—with heat resistant masking tapes for use on bare metal or painted surfaces. They come off cleanly and easily from either hot or cooled surfaces after exposure to advanced temperatures and can be handled as any "SCOTCH" Masking Tape.

For example, above, apertures of an aircraft engine cylinder are masked with die-cut pieces of pressure sensitive "SCOTCH" Tape No. 215, prior to the spraying of "baked-on" primer and finish coats.

Naturally, all high heat masking jobs vary in their requirements and generally call for preliminary tests and analyses to determine the correct "SCOTCH" Tape to be used, as well as the best application and removal procedures. "SCOTCH" Tape Field Engineers and the 3M Laboratories stand ready to advise you in such instances. Give us the word when we can be of service.

REG. U.S. PAT. OFF.

SCOTCH TAPES

BRAND

FOR HIGH TEMPERATURE WORK

ANOTHER 3M COMPANY PRODUCT

Made in U.S.A. by MINNESOTA MINING & MFG. CO. St. Paul 6, Minn.

General-Export: DUREX ABRASIVES CORP., 63 Wall St., New York 5, N. Y.

In Canada: CANADIAN DUREX ABRASIVES LTD., Brantford, Ontario

IRIDITE

GIVES YOUR ZINC DIE CAST PRODUCTS lasting corrosion protection . . . better paint adherence . . . colorful, *salable* finishes

By a simple quick dip, manually or in automatic machines, Iridite provides a triple-purpose finish on zinc die cast products—Iridite gives you—

CORROSION RESISTANCE

. . . for protection from air, water, gasoline, other harmful corrosives.

PAINT ADHERENCE

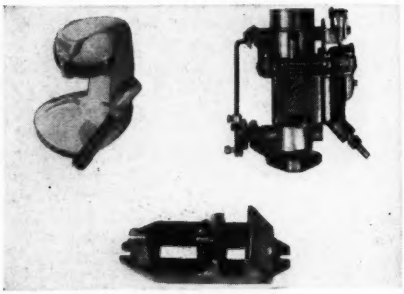
. . . to vastly increase corrosion resistance and to secure a paint system that defies chipping, flaking, peeling.

EYE APPEALING COLOR

. . . that protects the product on the shelf, draws the customer's eye.

Fruit juicer finished with Iridite to insure permanent adherence of sparkling enamel finish.

Automobile carburetor, finished with Iridite for protection against corrosion from gasoline, fuel line moisture.



Bench vise, finished with Iridite to provide permanent blacking and corrosion protection.

●

If your products use zinc die cast parts, write today for information on how Iridite can help you make a better, more salable product.

Allied Research Products, Inc.

301 CHEMICAL BLDG.

4004 E. MONUMENT ST. • BALTIMORE 5, MD.

operations the new plant will ship 32 railroad cars of ranges daily. In addition to rail shipment, the warehouse is equipped with ramp facilities to accommodate seven trucks for local deliveries.

The plant will unload 16 railroad cars of incoming materials each day. A piece of steel arriving at the new factory in the morning reaches the warehouse as a completed range the same day.

The plant contains a complete range finishing department, described by company engineers as the most modern in the industry. A straight-through type automatic pickling machine has been designed and supplied by Metalwash Machinery Corporation. New to porcelain enamel plants are the Raymersion infra-red drying ovens supplied by Trumbull Electric Manufacturing Company. Four furnaces in the finishing department consume sufficient electric current each day to supply a town of 30,000 persons. Overhead conveyor lines above the enamel room have a storage capacity for parts for 800 ranges.

Many phases of fabrication are carried out through the use of specially designed equipment. Typical of this unique equipment is a 450-ton Verson range drawer press. This machine, the only one of its kind in the world, was designed by the Verson Allsteel Press Company in conjunction with Hotpoint engineers. Cold roll stock is automatically fed from a coil cradle through a stock straightener into the huge press. The first of eight dies in the press blanks out the stock. The blanked stock then proceeds through consecutive stages of drawing, trimming, forming, and beading. At each stroke of the press a completed range drawer emerges ready for cleaning and finishing.

A battery of four Bliss presses was specifically designed to perform completely automatic range body fabrication. Cranes carry 15 tons of sheet steel to a Dexter feeder. The sheets then automatically move through a roller to a slitter which trims the sheets. Carried by a pick-up conveyor, the steel is then fed to the four presses which form the range bodies at a rate of 180 per hour.

Nance said that despite material shortages the new plant was completed in the 15-month period scheduled for its construction. Unloading and shipping operations all housed under one roof, fluorescent lighting, use of two contrasting colors for painting various machines, and the most modern labor-saving equipment were cited as outstanding contributions to new standards of employee working conditions in the plant.

NOW A BETTER AIR DRY RACK INSULATION

BUNATOL No. 831 is a new idea in air dry rack insulation. A semi-thick liquid that forms a heavy black coating with each dip. So few coats are necessary that time and labor is saved. A slick, black, tough insulation that rinses freely and does not carry over. Very flexible so it will not crack on spring contacts. Use in all plating solutions without contamination. Stands up in all cleaners except degreaser. No oven required; just dip or brush, then air dry. Saves labor. Get a sample of No. 831 and be convinced.

NELSON J. QUINN CO., Toledo 7, Ohio

BUNATOL

COMPANIES

THE DU PONT COMPANY has announced the small scale manufacture of titanium metal, a new basic raw material for industrial development.

A pilot unit of 100 pounds daily capacity has been successfully placed in operation at the Newport, Delaware plant of the Pigments Department. This, so far as the company knows, is the first time ductile titanium metal has been produced for commercial exploration.

THE MAGNUSON PRODUCTS CORP., Brooklyn, N. Y., manufacturer of Permag cleaning compounds for industrial purposes, celebrated its twenty-fifth anniversary in September.

Edward Magnuson, president of the corporation, was formerly engaged in numerous business enterprises; and from both executive and sales experience gained over the years, combined with his inventive genius, energy, and practical knowledge of soaps and cleaning compounds, the Magnuson Corporation was launched in 1923. Today more than 350 distinct Permag products are distributed to the cleaning compound and detergent trade throughout the United States and Canada. These industries embrace the automotive, textile, dairying and food processing plants, transportation, paper mill, metal working, and a multitude of other large industries.

The success of the Magnuson enterprise is largely due to the integrity and sound business judgment of the founder, Mr. Magnuson, and his faithful associates who have guided the firm through the years of prosperity as well as those of adversity. The individual customer's requirements in the solution of cleaning problems have always been the chief concern of the company.

The Permag products factory is located on Third Street, Brooklyn, New York, in a substantial brick building together with huge storage and warehouse facilities. More than 125 employees and a large sales organization, located throughout the country, comprise the efficient force that carries on the production and distribution of Permag products. A highly competent technical service staff is part of the Magnuson establishment.

In Canada, The Canadian Permag Products Ltd., under skilled management, looks after the requirements of Canadian users of Permag. Representatives and warehouses are located in Montreal and Toronto.

Edward Magnuson was born in Sweden and came to America to make it his permanent residence in 1910, after following a most interesting and adventurous sea career. He is recognized as one of the most successful and loyal Swedish-American manufacturers; a generous and active supporter of Swedish-American causes and projects. The Swedish Hospital in Brooklyn, of which he is president, is one of his major interests.

THE CAMBRIDGE WIRE CLOTH CO., Cambridge, Md., manufacturer of industrial wire cloth, woven wire conveyor belts, and specialized wire fabrications, has announced the opening of a sales office in Houston, Texas. District sales engineer in charge of the new operation is Charles E. Shuman, 5208 Willow Ave., Bellaire, Tex. The territory covered by the new office will include Texas, Oklahoma, Arkansas, Louisiana, and Mexico.

At a special meeting held in Cleveland, Ohio, on August 16, the stockholders of The Cowles Detergent Company approved a resolution changing the firm's name to **COWLES CHEMICAL COMPANY.** Founded in 1885, the company has long been active in the manufacture of industrial chemicals and detergent silicates, as well as specialized detergents, for the laundry and metal-cleaning industries.

No change in ownership, management, or policy is involved in the change of name.

A complete line of cleaning equipment and chemicals for both production and maintenance cleaning is now being offered to the automotive and aviation service field by **DETREX CORP.**, Detroit 32, Michigan.

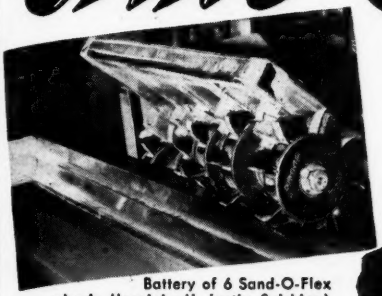
In making this announcement, W. F. Newberry, sales manager, states that the company has over 28 years of experience in the application of scientific cleaning methods to industrial production processes. Products to be marketed immediately to the service field include: solvent-vapor degreasers, parts washers, cleaning tanks, non-inflammable degreasing solvents, alkali cleaning compounds, detergents, emulsion cleaners, paint strippers, spray booth materials, masking compounds, and shampoo-type cleaners.

13,680 sanding strokes per min.

on curved or irregular parts with

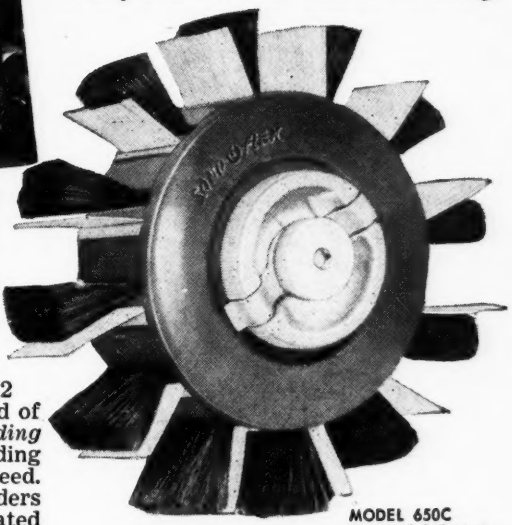
SAND-O-FLEX

Trade-Mark Reg. U.S. Pat. Off.



Battery of 6 Sand-O-Flex wheels "graining" (satin finishing) stainless steel refrigerator doors at Weber Showcase and Fixture Co. Four frames per hour are now processed as compared to two per hour with former methods. Costs are cut in half.

Compare this to hand sanding



MODEL 650C
Patented & Patents applied for

TWELVE STRIPS of abrasive cloth (2½" wide) backed by 12 brushes, rotating at motor speed of 1140 r.p.m. gives *13,680 sanding strokes per minute.* Hand sanding will never approach this speed. Sand-O-Flex brush-backed sanders get in and around complicated forms, and quickly clean, finish and polish intricate curves and contours. Ideal for deburring parts too large to be tumbled, for removing rust, scale, paint and imperfections from metal surfaces, satin finishing stainless steel and replacing sand blasting.

Sand-O-Flex consists of a metal wheel which houses the prepared abrasive cartridge. Loading is accomplished in a matter of minutes —no gluing, looping or fastening ends. It feeds out by hand and intermittent brush design prevents over-heating.

Sand-O-Flex comes in 3 sizes for a wide variety of production line uses. They fit present tools—motor shafts, electric drills, flexible shafts, lathes, drill presses, etc. For complete information, specifications and prices on all models, write for free catalog.

MERIT PRODUCTS, INC.

4373 Melrose Ave. Los Angeles 27, Calif.

JAS. P. MARSH CORP., Skokie, Ill., has announced the acquisition of the Witt Gauge Division of the National Pressure Cooker Co., Eau Claire, Wis., effective September 30. The identity of the Witt line will be preserved, but Witt gauges, including the oxygen and welding gauges, will be produced in the Marsh plant by the "Witt Gauge Division" of Jas. P. Marsh Corporation.

Jack A. Mansfield, Diamond Alkali Company sales representative for the past 11 years, has resigned to become a partner in a new concern to be known as **MAN-GILL CHEMICAL CO.**, Cleveland. Having served in the Cleveland, Youngstown, Canton area for the past 2½ years, Mr. Mansfield is well-known among the industrial users of chemicals in that territory. His partner in the new firm is Vencent Gilliam who heads Gilliam, Inc., a Cleveland organization.

The Man-Gill Company, with offices at 2394 Canal Rd., Cleveland, Ohio, will handle its own metal cleaners and formulate cleaners to customers' specifications. Products offered will also include chemicals such as caustic soda, soda ash, silicates and phosphates.

THE FIBER CHEMICAL CORP., Cliffwood, N. J., reports that its recently completed plant for the manufacture of chromic acid is now in full production and that plans are already under way for a further extension of capacity as a result of the continued heavy demand for this material.

Fiber Chemical Corporation also specializes in the production of fine chrome compounds, a large proportion of its products being absorbed by the leather tanning and textile industries.

A recent item in the "Southington, Connecticut News" describes a customer service performed by the **ALSOP ENGINEERING CORPORATION.** Alsop recently received a complete filter unit shipped by air from Stroudsburg, Pennsylvania, to the plant at Milldale, Connecticut. The unit was repaired and returned to the plant at Stroudsburg the same day. The filter unit was in use in the plant of the Ingraham Research Laboratories and by means of this rapid repair service it was possible to place the filter in operation the same day it was removed from service for repair.

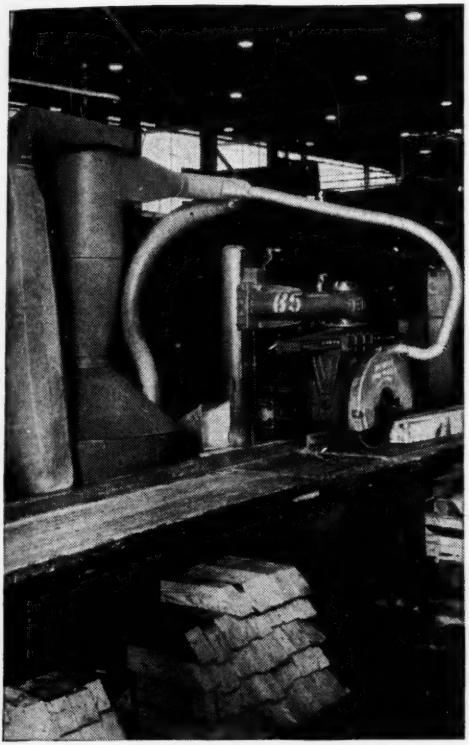
Serving the extensive metal finishing industry over the years — in full appreciation of our customers' patronage and loyalty.

MAGNUSON PRODUCTS CORPORATION
PERMAG
25th ANNIVERSARY
1923-1948

The identifying quality mark found on all PERMAG products for the metal cleaning field.

MAGNUSON PRODUCTS CORPORATION
Main Office: **50 Court Street**
BROOKLYN 2 - - - NEW YORK
In Canada: Canadian PERMAG Products, Ltd.
Montreal - Toronto

TORIT DUST COLLECTORS



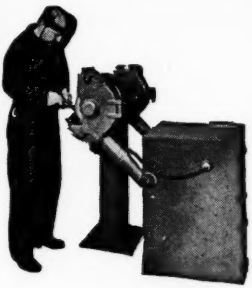
keep the "chips from flying" on this swing saw

Wood sawing operations are a major factory nuisance. Each cutting releases large volumes of saw dust, ranging from fair sized chips to a fine wood flour. These have an adhesive quality that makes cleaning operations difficult.

The circular swing saw illustrated here is used for cutting hardwood timbers. Suction pipes, attached to the wheel enclosure, lead to a TORIT No. 13-FB Dust Separator. The heavier particles are removed by the cyclone unit and the fine dust in the after filter.

This installation eliminates the need of a central dust system, with its maze of piping. It takes up little room. Operating only when the saw is running, it reduces costs.

Over 16,000 TORIT Dust Collectors are now cutting costs and solving the dust problem in every type of American industry. Models for all standard dust collecting jobs are now available for immediate delivery. For details and the latest TORIT catalog, write:



See our exhibit
Booth 760
National Metal
Congress
Philadelphia, Penn.

TORIT MANUFACTURING CO.

314 Walnut Street. St. Paul 2, Minn.

INDUSTRIAL CORROSION CONTROL, INC., whose chief service is lining industrial equipment with anti-corrosive coatings, has been incorporated under the direction of R. G. Forsberg, president. General sales offices for Industrial Corrosion Control, Inc., will be maintained at the Empire Bldg., Pittsburgh, Pa., with James D. Clokey, Jr., as sales manager. Sales representatives are located throughout the principal cities of the United States.

The plant, located at Neville Island, Pittsburgh, maintains complete facilities to line industrial equipment with vinyl plastisol, a thermosetting plastic which has proven highly successful as a protective agent against corrosion in industry.

ALLIED RESEARCH PRODUCTS, INC., Baltimore, has announced that the following agents have been appointed for the sale of Iridite, the corrosion resistant treatment for zinc and cadmium surfaces:

L. J. Camill, Detroit, Mich., to cover all of the State of Michigan; J. A. Cairns, Yeadon, Pa., to cover eastern Pennsylvania and New Jersey; Industrial Chemical and Equipment Co., Minneapolis, to cover western Wisconsin and Minnesota; LaSalco, Inc., St. Louis, to cover the Central Southwest; C. H. Hohner, Atlanta, to cover the Southeast States; Mitchell-Bradford Co., Bridgeport, Conn., continues coverage of New York and New England; and A. L. Poe, Chicago, continues as district sales manager for Chicago and the Central States.

NEW POSITIONS

The Cambridge Wire Cloth Co., Cambridge, Md., has announced the appointment of **PAUL V. THOMURE** as district sales engineer for the company's St. Louis office. Mr. Thomure will be located at 1248 Syndicate Trust Building, and will cover the States of Missouri, southern Illinois, southern Indiana, Kentucky, and Tennessee.

Appointment of **ROLLAND I. PETERS** as technical director of the Ditzler Color Division, Pittsburgh Plate Glass Company has been announced by William T. Utley, divisional director.

Associated with Ditzler since 1936, Mr. Peters succeeds M. G. Bell, who will enter business for himself as a Ditzler jobber at Seattle, Washington. Mr. Peters attended the University of Illinois where he graduated with honors in chemical engineering. He had served as assistant technical director under Mr. Bell. **HAROLD W. REDSHAW** has been appointed to the position of assistant technical director. An honor student at the Detroit Institute of Technology, Mr. Redshaw has been associated with the Ditzler laboratories since his graduation in 1935 as a bachelor of science of chemistry.

PAUL H. GOODALL has been appointed manager of industrial heating sales of the Trumbull Electric Manufacturing Co., Plainville, Connecticut.

Mr. Goodall is chairman of the Radiant Heating Committee of the American Institute of Electrical Engineers. He is a member of the Illuminating Engineering Society, the National Society of Professional Engineers, the Engineering Society of Cincinnati, and the Engineering Society of Detroit.

Mr. Goodall is a native of Cincinnati, Ohio, where he attended the University of Cincinnati. He joined Trumbull in 1943 to develop the company's line of "Raymersion" heating equipment.

ROMAN C. BENDER has joined the sales organization of Frederic B. Stevens, Inc., Detroit, Mich., and represents the company in Indiana and Kentucky.

Mr. Bender has been connected with the plating, polishing, and finishing industries for almost a quarter century. He was formerly plating superintendent at both Clum Mfg. Co., Milwaukee, and Adams and Westlake Co., Chicago. Later, he acted as sales representative for The Egyptian Lacquer Manufacturing Company. Prior to joining the Stevens organization he owned and operated the Chicago City Plating Company.

Mr. Bender is a member of both the Electrochemical Society and the American Electroplaters' Society, and he has been very active in the latter since 1932.

New director of purchases for the American-Marietta Co., 154 E. Erie St., Chicago, Ill., is **HARRY N. WALKER,** according to an announcement made today by Grover M. Hermann, president.

Mr. Walker comes to American-Marietta from the home office of the Sherwin-

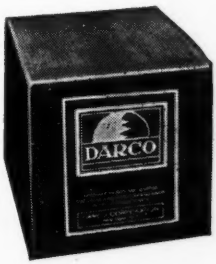
Start Clean and it'll Finish Clean

Start right—by keeping your solutions clean. For magic results, use Darco S-51.

Darco S-51 adsorbs—eliminates—those impurities that get past the mechanical filter. Used in conjunction with a filter, Darco provides solutions that mean trouble-free work in bright nickel—copper—iron—zinc—cadmium—tin—gold and silver.

Darco is especially easy to handle—easy to wet and quick to incorporate into the slurry. Inexpensive, too—a few cents' worth will purify 100 gallons of solution a week.

Darco *can* help you improve your work at lower cost—and Darco technicians are ready to show you how. Darco distributors are everywhere — write yours for a sample, today.



DARCO

*Darco—Reg.U.S.Pat.Off.

DARCO CORPORATION

60 E. 42nd Street, New York 17, N. Y.

Is your plating bath as clean as the water in your final rinse?

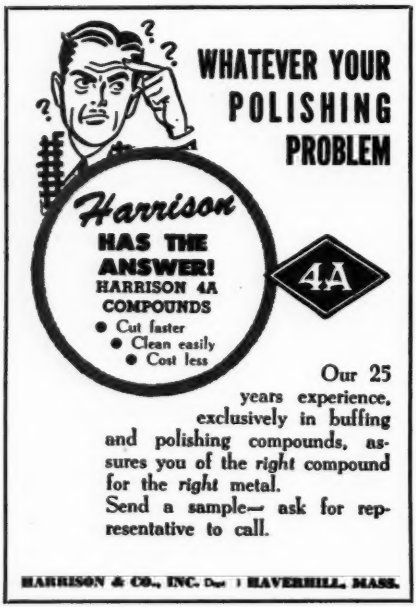
Williams Company of Canada, Montreal, where he was director of purchases. Previously he was with the Armstrong Cork Company, Montreal, for three years, and for more than four years was in the building materials division of the Canadian Johns-Manville Company.

ROBERT PFAUMER, formerly with Resinous Products & Chemical Company, has joined the American-Marietta Company as vice president in charge of operations in the chemical and resin fields.

He will also establish and direct a centralized research and product development program from central headquarters in Chicago.

According to a recent announcement by the Atlas Powder Company, **EDWARD J. MAHAR** and **ROBERT E. WRIGHT** have been added to the industrial finishes sales force.

J. M. Howard, general manager of industrial finishes for the company, stated that Mr. Mahar will be the sales representative for the Zapon line in western Massachusetts, while Mr. Wright will be sales representative in the Philadelphia area.


WHATEVER YOUR POLISHING PROBLEM
Harrison
HAS THE ANSWER!
HARRISON 4A COMPOUNDS
● Cut faster
● Clean easily
● Cost less
4A
Our 25 years experience, exclusively in buffing and polishing compounds, assures you of the right compound for the right metal.
Send a sample— ask for representative to call.
HARRISON & CO., INC. HAVERHILL, MASS.

Mr. Mahar, a New Englander by birth, attended the University of Southern California and, prior to coming with Atlas, was with W. J. Fuller Company and also Hedstrom-Union Company.

Mr. Wright comes to Atlas with a sales background in finishes, inks, and industrial chemicals and has for the past ten years been associated with Cushman and Denison. Prior to that time he was with American-Marietta and Oakite Products. His headquarters will be in the Land Title Building in Philadelphia.

The advancement of four executives of the Minnesota Mining & Manufacturing Co., St. Paul, Minn., has been announced by Joseph C. Duke, vice president in charge of the coated abrasives division.

ALLAN H. BUTZ, former sales manager for related products (abrasives division), has been appointed general sales manager for related products, and will also act as an advisor in the management group of coated abrasives and related products. He has been in office, sales, and sales managerial work with 3M since 1925.

Management of manufacturing of coated abrasive products will be the responsibility of **C. C. MARCH,** a chemical engineer who has been with the company since 1933. He was formerly products manager in the manufacturing section of the coated abrasives division.

ALFRED L. GILSTAD, who first joined 3M in 1918, has been promoted to manager of planning and service for the abrasives division. He previously was merchandising manager for "Safety-Walk," a non-slip floor surfacing product.

The former sales office manager for the abrasives division, **GILMORE A. SALMON,** has been promoted to the post of merchandising manager for all coated abrasives. He has been with the company since 1930, and has spent about eight years in the advertising department.

Appointment of **OTTO J. HARTWICK** as technical director of the Houston paint division of Pittsburgh Plate Glass Company has been announced by Dr. W. W. Bauer, technical director.

Mr. Hartwick has been associated with the paint industry since his graduation from New York University in 1921 as a B.S. in chemical engineering. Since his association with Pittsburgh Plate Glass Company, Mr. Hartwick has also served as lacquer and paint chemist at the Newark and Milwaukee plants.

RHINO TOUGH or BUNNY SOFT...

There's a Pittsburgh Power Driven Brush for every Industrial Use!

- GLASS
- STEEL
- PLASTICS
- AUTOMOBILE
- RUBBER
- PAPER
- TIRE & RETREADING
- SHOE MANUFACTURING & REPAIRING

In the complete Pittsburgh line are brushes of all types—specifically designed to meet your particular finishing requirements.

Pittsburgh brushes are *tough*. They're stiff enough to resist abrasions or they're soft enough to improve surface texture. And the carefully controlled distribution of the brushing stock gives perfect balance to these brushes.

They're made to do your job right. They're made to provide top efficiency, enduring economy.

Consult your Pittsburgh engineering representative today. He'll be glad to help you work out your problems by developing any type of power-driven brush needed.

FREE!

Steel rule and depth gauge, 6", complete with pocket clip, and attractive leather case. Yours for the asking . . . write on your Company letter head to Pittsburgh Plate Glass Company, Dept. W-6, Baltimore 29, Md.

Power Driven BRUSHES

BRUSHES · PAINT · GLASS · CHEMICALS · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

TED SCHUSTER and **FRED SCHOEMAN** have joined the sales staff of Processed Chemical & Coatings Corp., 33 N. 1st St., Brooklyn 11, New York.

Mr. Schuster will be sales representative in the States of Pennsylvania, Maryland, District of Columbia, and Virginia. Mr. Schuster has previously served this territory in the capacity of technical adviser on production finishes.

Mr. Schoeman will be sales representative in New York and New England. He will add to the staff of Processed Chemical and Coatings Corporation his 10 years' experience in sales.

ROBERT O. BLACKFORD has been named advertising and sales promotion manager of the Michigan Abrasive Co., Detroit, Mich., according to an announcement by Max C. Jones, president.

Mr. Blackford comes to the Detroit company after considerable service in the coated abrasive field, following in the footsteps of his father and grandfather. Mr. Blackford's grandfather, W. H. Beamer, started in this industry in 1903 for the Herman Behr Co., Brooklyn, forerunner of the merged Behr-Manning Company. Mr. Beamer retired in 1928 but Mr. Blackford's father, Charles O. Blackford, still continues in this industry.

The appointment of **RAY DAVID CUNNINGHAM** as manager of the Protective Coatings Department, Sales Division, Lion Oil Co., El Dorado, Ark., has been announced by T. M. Martin, president. The announcement simultaneously revealed that the company will, in the next four months, construct a $250,000 plant at El Dorado, which will be devoted exclusively to the manufacture of protective coatings.

Mr. Cunningham has had broad experience in the field of protective coatings and is widely known in the trade. His most recent position was that of director of sales for the Nox-Rust Chemical Corporation of Chicago. Prior to that he was for 10 years manager of the Rust Preventative and Protective Coating Department of the Kendall Refining Co., Bradford, Pa. A graduate engineer of Buchtel College, Mr. Cunningham has been active in the petroleum industry and in protective coatings in particular since 1920.

As of September 1, **L. A. ADAMS** became assistant to the vice president and **A. S. AULT** became manager, sales and service, for the Chicago Vitreous Enamel Product Company, Cicero, Illinois.

Mr. Adams entered the porcelain enameling field in 1920 with the Mansfield Vitreous Enameling Co., Mansfield, Ohio. On April 1, 1929, he became Eastern district manager for Chicago Vit, spent one year in that territory and the following two in the Chicago office. He then moved to St. Louis, Missouri, and traveled in the Southern territory until February 1947, when he became assistant manager, sales and service.

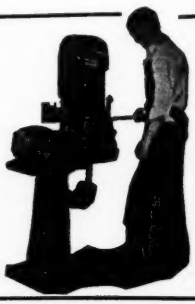
Mr. Ault, after graduating from Ohio State University in June 1931, worked for the City of Columbus; Frigidaire Division, General Motors Corporation; General Electric Company; and Briggs Manufacturing Company, prior to becoming associated with Chicago Vit on August 25, 1936. After serving as service engineer, he became Eastern district manager. During the war he served in a vital capacity in the Chicago Vit armor plate program. At the close of the war he became assistant manager, sales and service, from which position he has now been promoted.

"PRODUCTION" TYPE S

CENTERLESS GRINDER • POLISHER • BUFFER

The PRODUCTION Type S machine combines a centerless feed polishing machine with a vertical or horizontal belt grinder, surfacer, polisher or buffer for both cylindrical and flat work. Can be used for anything that can be ground or polished—metals, rubber, fibre, wood, etc.

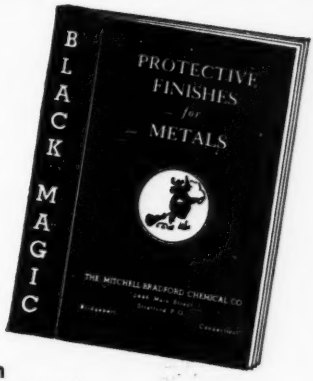
WRITE FOR ILLUSTRATED FOLDER.



Production MACHINE COMPANY GREENFIELD, MASSACHUSETTS, U.S.A.

BRING YOUR FILE UP TO DATE ON *Modern Metal Finishes*

SEND FOR THE **BLACK BOOK**→



This portfolio contains latest information on chemical metal finishing processes, corrosion inhibiting coatings, paint bonding and heat treating materials.

BLACKENING PROCESSES FOR METAL

- BLACK MAGIC for Steel and Iron
- BLACK MAGIC for Zinc, Zinc Plate, Zinc Die Castings and Cadmium Plate
- BLACK MAGIC for Copper and its Alloys

PROTECTIVE FILM FINISHES

- WITCH DIP, Wax Base Compound
- WITCH OIL, Water Displacing Corrosion Inhibiting Oil
- FINISH No. 146, Hard Protective Coating and Paint Bond

METAL CLEANERS

- BLACK MAGIC Alkali Cleaners for all metal cleaning purposes
- BLACK MAGIC Solvent Cleaners (emulsion type)

OTHER MITCHELL-BRADFORD PRODUCTS

- BLACK MAGIC Wetting Agents
- BLACK MAGIC Acid Inhibitors
- QUICK TEMPER TEMPERING AND DRAWING SALTS — 275° F. and 420° F. Melting Points
- QUICK CARB Liquid Bath Carburizing Salts
- "SILCO" — An inorganic, low-temperature bake, vitreous type finish. Rust, acid and abrasion resistant. All colors.
- TANKS, Thermometers and Controls
- PLATING EQUIPMENT and supplies

THE MITCHELL-BRADFORD CHEMICAL CO.

2446D Main St. (Stratford) BRIDGEPORT, CONN.

FREDERICK H. WEISMULLER has been appointed general manager of the Pigments Department of the DuPont Company, Wilmington, Del., and **DR. D. H. DAWSON** assistant general manager, according to a company announcement. Mr. Weismuller succeeds John F. Daley, who will become manager of the Organic Chemicals Department.

Graduate of Cooper Institute, New York City, Mr. Weismuller has been assistant general manager of the Pigments Department since June 1946. He has been engaged in pigments production since 1926 when he joined the Krebs Pigment and Chemical Company at its Newark, New Jersey plant, which company became associated with Du Pont in 1929.

Dr. Dawson is a graduate of Drexel Institute of Technology and Ohio State University, and has been with Du Pont since 1933 when he joined the company as a chemist.

DR. WILLIAM BLUM, head of the Electrodeposition Section of the National Bureau of Standards, has been designated assistant chief of Chemistry Division, replacing Dr. Edward Wichers, who has been named chief of the Chemistry Division. Dr. Blum, whose name is quite familiar to those in the metal finishing field, joined the Bureau in 1909 and has been engaged principally in work on electrochemistry, electrotyping, electroplating, and electroforming. He has also done some work on the atomic weight of cadmium and on the complex inorganic acids. He is co-author with Mr. George Hogaboom of "Principles of Electroplating and Electroforming."

HONORS

FRANCIS COWLES FRARY, director of research, Aluminum Company of America, has been elected to receive the Gold Medal of the American Society for Metals for 1948. According to the announcement by W. H. Eisenman, national secretary of the Society, the ASM Gold Medal is awarded "for outstanding metallurgical knowledge and great versatility in the application of science to the metal industry, as well as exceptional ability in the diagnosis and solution of diversified metallurgical problems."

The Gold Medal will be presented to Dr. Frary during the National Metal Congress and Exposition in Philadelphia, October 25-29.

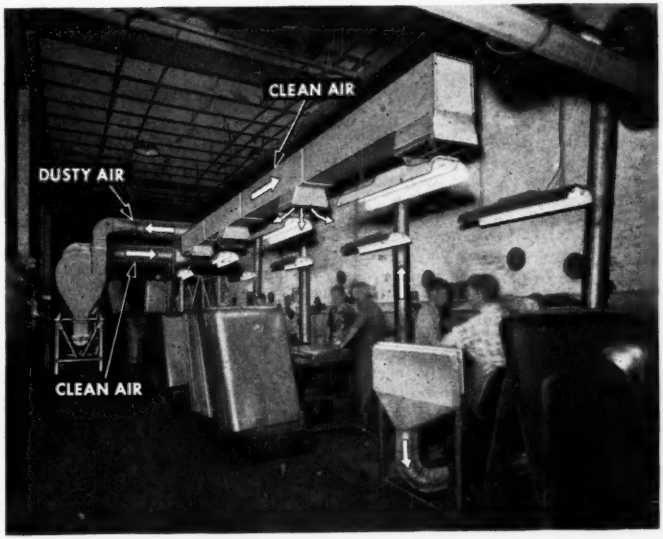
Dr. Frary has been active in all phases of research on aluminum, from the processing of bauxite and the production of the metal to its final application. He has made important contributions in such diverse fields as the electrothermal production of alumina, the electrothermal production of aluminum alloys, electric calcination of coke for the production of electrodes, molding sands used for casting magnesium alloys, and aluminum alloys. Frary Metal, his first significant contribution to metallurgy, is a lead alloy for bearings, hardened with calcium and barium. Developed in 1914 with Sterling Temple, the alloy exhibited the then unique phenomenon of age hardening. Working with William Hoopes, Frary produced in 1920 the first aluminum of 99.99 per cent purity by a unique method of electrolytic refining in a three-layer fused salt bath.

SOCIETIES

After 18 years in the position, Dr. A. B. Parsons has resigned as secretary of the **AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS.** The resignation becomes effective in February 1949 but, in the meantime, Dr. Parsons will be on leave of absence. After November 1 he can be reached at 6091 Castle Drive, Oakland 11, California. E. E. Robie, who was Dr. Parsons' principal assistant during nearly all of his tenure of office, will be acting secretary during the remainder of the year.

Dr. Harold K. Work, manager of research and development of the Jones and Laughlin Steel Corporation, Pittsburgh, has been nominated for the office of president of the **AMERICAN SOCIETY FOR METALS.** Dr. Arthur E. Focke, research metallurgist of the Diamond Chain and Manufacturing Company, Indianapolis, was nominated for vice president; W. H. Eisenman, present secretary, was nominated for his 16th consecutive two-year term in that office, having first been elected in 1918; Dr. Harry Croft, Director of Technical Control and Research, Chase Brass and Copper Company, Cleveland, and Frederick J. Robbins, manager, Sierra Drawn Steel Corporation, Los Angeles, were nominated for two-year terms as national trustees. All nominations are for 1948-1949.

Air Tumbler



THE MASTER OF DUST IN INDUSTRY

This picture shows what can be and is being done with the AIR-TUMBLER, a Wet Dust Collector which wets the dust but not the air. This ventilating system could be so designed because of the AIR-TUMBLER'S

MAXIMUM EFFICIENCY, (The dust-free air is fully recirculated and discharged directly above the heads of the men working on the four grinding benches served by the AIR-TUMBLER.)

AND MINIMUM HUMIDIFYING ACTION. (The returned air is so slightly humidified that the men can work in its direct path without being chilled.)

In addition, the AIR-TUMBLER is serving management by economy in power consumption and by savings in heating and maintenance costs.

Write for explanatory booklet.

Copyright 1948 by G. C. Ziliotto

DUST SUPPRESSION & ENGINEERING CO.
LAKE ORION • MICHIGAN

MEETINGS

The National Association of Suggestion Systems, 122 S. Michigan Ave., Chicago 3, Ill., will sponsor a **NATIONAL FALL CONFERENCE** at Hotel Drake, Chicago, on November 8 and 9. The conference theme is "Suggestions . . . A Tool for Human Relations." Among the speakers who will present talks during the conference are: Ralph S. Damon, president, American Airlines System; General Leslie R. Groves, vice president, Remington Rand Inc.; James L. McVittie, administrator, Suggestion System, Eastman Kodak Company; and Charles M. Otis, administrator, Suggestion System, The American Laundry Machinery Company.

In addition to the speakers and talks scheduled for presentation, the three top suggesters in the nation will be recognized and rewarded. These winners have been selected through a contest conducted during the year and will be presented with National Association of Suggestion Systems-Supervision Magazine annual Imagineer oscars.

Members of the general program committee handling arrangements for the Conference are: H. J. Richey, chairman; F. A. Denz; L. J. Alger; S. W. Rubenstein; and C. A. Gueutal.

THE 36TH NATIONAL SAFETY CONGRESS AND EXPOSITION, sponsored by the **NATIONAL SAFETY COUNCIL,** 20 N. Wacker Dr., Chicago 6, Ill., will be held in Chicago from October 18 through October 22. Five leading hotels will house the safety sessions and expositions. They are: Stevens Hotel, for the industrial safety exposition and industrial sessions; Sherman Hotel, for the public safety exposition and traffic, farm, home and women's safety sessions; Morrison Hotel, for industrial and school and college sessesions; and Congress and La Salle Hotels, for industrial sessions.

NECROLOGY

CARL A. CARLSON, sales engineer for Norton Co., Worcester, Mass., died Sunday, August 29, in a plane crash near Winona, Minnesota.

Born in Stockholm, Sweden, June 19, 1888, Mr. Carlson graduated from the Sala Engineering School in Sweden. He came to the United States in 1912 and began his long career with Norton Company July 9, 1913, where he started work in the machine shop. In January 1923 he was appointed to the sales engineering department and remained a member of this department until his death.

Mr. Carlson was the inventor of a billet grinding machine (1943) and a wire grinding machine (1944), both patented. His influence was a vital factor in the establishment of high speed grinding and directed his company's activities in a successful program to develop resinoid bonds for high speed grinding in foundries and steel mills throughout the United States. Mr. Carlson was a leading consultant on snagging operations and was considered one of the best informed men in this field in the world.

ALDUS C. HIGGINS, 75, for nearly a half century closely identified with Norton Co., Worcester, Mass., and long active in the city's cultural, philanthropic and educational life, died September 10 at his home, 1 John Wing Road, Worcester.

Mr. Higgins, at the time of his death, was chairman of the Norton Company executive committee. His first Norton employment was as patent counsel, starting July 1, 1900.

Mr. Higgins on his 75th birthday anniversary last December was honored by the King of Sweden during the annual Norton Company service awards party in the Worcester Memorial Auditorium. He was decorated by the King, through the Swedish Consul-General, with the Royal Swedish Order of Vasa, first class, with the rank of Chevalier. The decoration was bestowed in recognition of his outstanding contributions to industry and art.

From patent counsel with Norton Emery Wheel Company, Mr. Higgins progressed to counsel and resident manager of the abrasive plant in 1901.

In 1903 he was advanced to general counsel and general manager of the abrasive plants. He was named secretary and general counsel in 1913 and served in these offices until 1919. From 1919 to 1933 he was treasurer and general counsel and in 1933 succeeded the late Charles L. Allen as president, becoming both president and general manager.

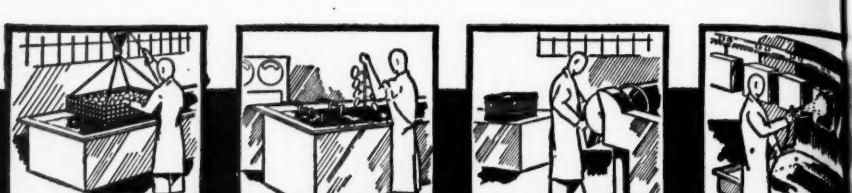
He was elected chairman of the board of directors in 1941 and held this position until January 1946, when he became chairman of the executive committee.

The magnesium castings from which this dial snap gage is made are acid dipped, primed, and then finished in a wrinkle finish, baked on at 250-275 deg. Fahrenheit.

(Photo courtesy Nilsson Gage Co., Inc., Poughkeepsie, N. Y.)

Decorative escutcheons and trim add eye-appeal to television sets. The R.C.A. logotype "Television" is chromium plated over brushed brass. The G.E. escutcheon, lower portion, is polished brass; the upper portion is brass, satin finish. The rectangular escutcheon on the left has an oxidized bronze finish. The dial escutcheon (upper right) is sprayed with gold-tinted lacquer enamel and baked.

(Photo courtesy American Emblem Co., Utica 1, N. Y.)



New • EQUIPMENT • MATERIALS • PROCESSES

Krylon Plastic Coating

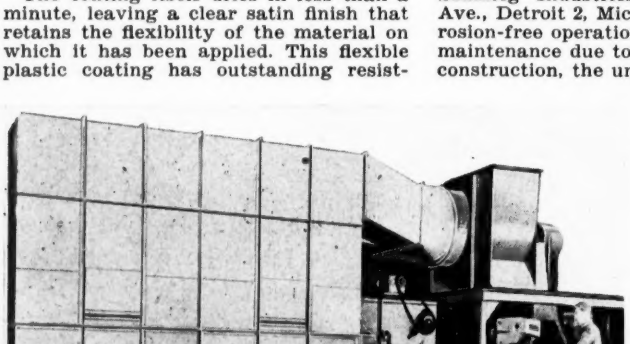
Krylon, a transparent plastic coating that is supplied in a self-contained handy compact sprayer, has been announced by Foster & Kester Co., Inc., Philadelphia 32, Pa. All that is necessary to release the plastic spray is to press the button on the top of the can with the index finger. The result is a fine spray of durable, colorless plastic material forced out under pressure in such a way as to provide a clear, protective coating that will adhere to practically any product.

The coating itself dries in less than a minute, leaving a clear satin finish that retains the flexibility of the material on which it has been applied. This flexible plastic coating has outstanding resistance to discoloration at high temperatures, water, alcohol, alkali, acids, mineral oils, grease, and chemical fumes. The Krylon protective coating may be removed at any time by a special solvent developed by the manufacturer.

"Centri-Merge" Arrester Unit

A 30,000 c.f.m. swirl type arrester made of stainless steel has been added to its line of "Centri-Merge" equipment by Schmieg Industries, Inc., 314 Piquette Ave., Detroit 2, Mich. Said to assure corrosion-free operation with a minimum of maintenance due to its all stainless steel construction, the unit is intended for use in removing dust and dirt from shakeout stations and sand handling and conditioning systems. Sludge disposal is effected by a skid on a lift truck. The conveyor drive is located on top of the conveyor spout.

Due to its compact design, the Centri-Merge Arrester Unit is said to occupy a minimum of floor space.



"Centri-Merge" Arrester Unit

Daniels Plating Barrel Unit

A completely self-contained plating barrel with individual low voltage rectifier is a recent development of the Daniels Plating Barrel & Supply Co., 129 Oliver St., Newark 5, N. J. The unit is incorporated with a specially constructed, convection-cooled selenium rectifier complete with controls and meters. Adequately designed for protection against solution corrosion, the unit is also designed to provide for 25 per cent continuous overload. The rectifier and controls are mounted for easy reading and operation.

Daniels Plating Barrel Unit

The unit can be furnished for any plating solution except chromium. The spacious cylinder of the Daniels Plating Barrel, which is mounted at an oblique angle, is designed to provide for maximum load, and rapid loading and unloading. This and a unique contact design are said to afford maximum plating efficiency.

Claimed features of the Daniels Plating Barrel Unit are low installation cost, negligible maintenance, low floor space consumption, and excellent plating efficiency.

Resinall Metalite Grinding Belt

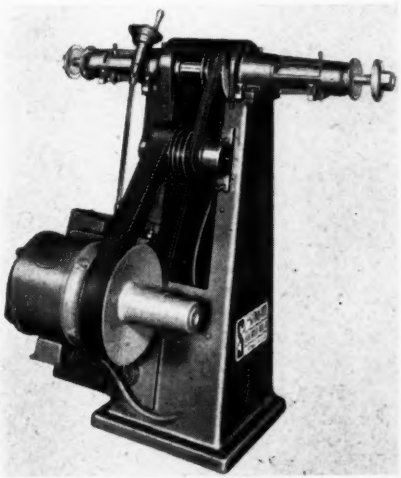
Resinall Metalite, a new heat-resistant dry grinding belt, has been released by Behr-Manning, Troy, N. Y., after extensive factory and field tests.

Utilizing special heat-resistant, thermosetting resin adhesives instead of the conventional glue-type adhesives, the Resinall Metalite cloth belts are said to remain sharper longer. Substantial production increases both in number of pieces per man-hour and in number of pieces per belt have been repeatedly demonstrated on heat-generating operations.

"Standard" Jackshaft Variable Speed Buffing and Polishing Machine

The Standard Electrical Tool Co., 2518 River Rd., Cincinnati 4, Ohio, announces the addition to its line of infinitely variable speed buffing and polishing machines of a unit with jackshaft construction which permits an infinite low-speed range or a 2-in-1 arrangement to provide both a low-speed and high-speed range. The machine is available in two types designated as the 3VJ2 and 3VJ. With the Type 3VJ2 (illustrated herewith) an infinite speed range of from 600 to 3,600 r.p.m. is available. The Type 3VJ is similar to the Type 3VJ2 but is furnished only for an infinite low-speed range which can be of any 2-to-1 ratio.

The Type 3VJ2 is shown equipped with a 3 h.p. motor, enclosed spindle, and four ball bearings. It is also available in 1 and 2 h.p. sizes.



"Standard" Jackshaft Variable Speed Buffing and Polishing Machine

New Alloy Lead Anode

A new alloy lead anode has been developed by Division Lead Co., 836 W. Kinzie St., Dept. 116, Chicago 22, Ill., manufacturer of lead, solder, and lead alloy products.

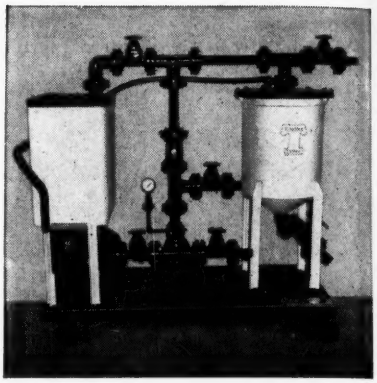
The alloy, a combination of tin, antimony, and lead, is now being used in the manufacture of the Divco 71-point and Divco 39-point lead anodes. Production plating service over a period of many months has revealed that the alloy anode provides improved resistance to chromic acid and increased electrical conductivity, as well as increased service life, the manufacturer states.

Titeflex SLA 1000 Filter

A new filter constructed of Saran-lined steel pipe and fittings and rubber-lined filter and precoat tank has been announced by Titeflex, Inc., 422 Frelinghuysen Ave., Newark 5, New Jersey.

Designated as SLA 1000, the Titeflex Filter can be used in the plating and chemical industries as well as in other industries where corrosive liquids are filtered. Both Saran and hard rubber have superior resistance to most of the common organic and inorganic chemicals. The filter parts lined with these materials combine a high degree of corrosion resistance with the supporting strength of steel backing.

The manufacturer claims that the filter can be used at temperatures between 0 and 180 deg. F. for general service. Both the Saran lining and the rubber lining have excellent insulating properties and, therefore, help maintain an even temperature in the solutions being filtered. They also exhibit very good resistance to erosion and abrasion.

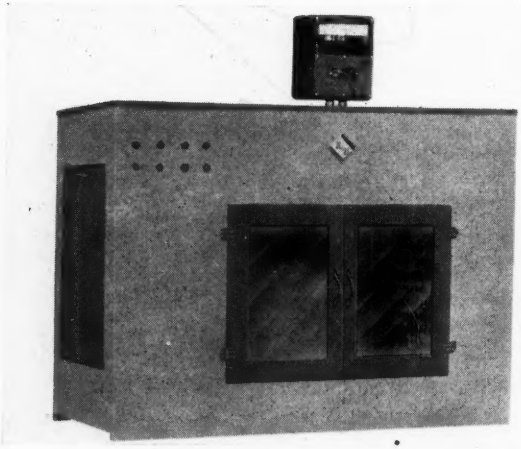


Titeflex SLA 1000 Filter

Model KHD-145 Bench Type Laboratory Oven

Design and production of a standard line of laboratory type industrial ovens have been announced by K&H Industrial Products, Inc., Dept. 39, 459 Morgan Ave., Akron 11, Ohio. Model KHD-145 Bench Type Oven, shown in the accompanying illustration, is the largest of the line, and has interior dimensions of 30 inches high x 40 inches wide x 22 inches deep. It has an operating range up to 700 deg. F., with accuracy guaranteed to within plus or minus 0.5 per cent.

Model KHD-145 Oven employs eight 1,350-watt Chromalox resistance fin strip heating elements, and features controlled, forced air flow to assure



Model KHD-145 Bench Type Laboratory Oven

Extra PROFITS FOR YOU

are engineered into the Kreider Dryer

Here's the speedy, one-man operated Kreider Centrifugal Dryer, designed for faster output . . . lower cost operation . . . increased profit per unit for you. The Kreider Dryer will dry a basketful of small parts thoroughly in only 35 seconds, leaving a lustrous, evenly dried finish which has greater rust resistance. Operation and maintenance costs are low; requires minimum floor space. V-belt drive and ¾ HP motor are standard; auxiliary heating unit available. *Write for illustrated bulletin with Kreider Centrifugal Dryer installations and complete specifications.*

DELLINGER MANUFACTURING CO.

729 N. PRINCE STREET - LANCASTER, PA.

uniform distribution of heat. Temperature setting and control are provided by a Bristol electronic input controller which can be of either control-indicating or of control - indicating - and - recording type. Oven controls can be mounted on the oven, as shown, or at a specific location for remote control.

Safety features include flush-mounted switches and indicating lights and electrical circuits that are automatically broken when oven doors are opened or when the blower malfunctions.

Detrex "Drex-Foam" Cleaner

A liquid detergent has been developed by the Automotive and Aviation Service Division, Detrex Corp., Box 501, Detroit 32, Mich., to clean dirt, grease, and grime from automobiles, trucks, tractors, trailers, buses, cars, and, coaches of all kinds, and aircraft. It is also an excellent general purpose cleaner.

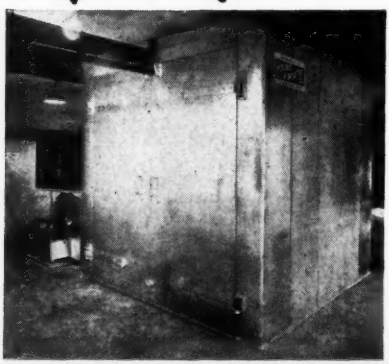
Marketed under the name of "Drex-Foam," the cleaning material possesses effective cleaning and wetting properties so that the surfaces cleaned are said to dry to a sparkling finish. It leaves no streaks, smears, or harmful effects on fine finishes or waxed and polished surfaces. This general purpose detergent contains no abrasives or harsh alkalis that would scratch or dull surfaces or attack the skin of the user, it is claimed.

As Drex-Foam is highly concentrated, most cleaning applications require the use of only 1½ to 2 oz. per gallon of water. On metals and painted surfaces, a pre-rinse with plain water may be used, and while wet, the dilute solution of Drex-Foam is sponged or flooded on the surface. The solution may be used either warm or cold. Dirt, soil, and grease are said to be immediately removed in swirls of protective foam and bubbles. Drex-Foam is so free rinsing that the surface need be merely flushed with clean water.

General Ceramics Vacuum Pump

The General Ceramics Co., Keasbey, N. J., is producing a chemical stoneware corrosion-proof vacuum pump of the rotary seal type. It is built to handle corrosive gases (with the exception of hydrofluoric acid and caustic alkalis) under positive and negative pressures up to a full at-

A Young and Bertke OVEN



IS THE ANSWER TO YOUR OVEN PROBLEMS

From a small laboratory testing oven to a large production conveyor-type oven, you are sure of efficient operation at low operating cost when you install a Young & Bertke Oven. Write us, we can design and build the oven which will exactly fulfill your individual requirements.

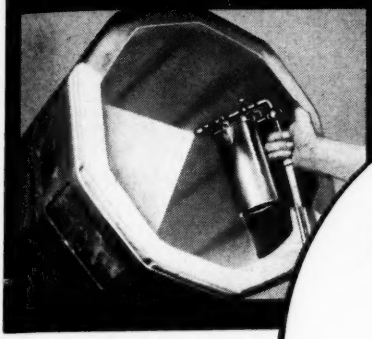
YOUBERT

The YOUNG BERTKE Co.

OVENS - SPRAY BOOTHS - FUME REMOVAL SYSTEMS

1124 HULBERT AVE. . . . . CINCINNATI 14 OHIO

25 YEAR OLD ECLIPSE PRESSURE FEED SPRAY GUN STILL IN DAILY USE— *still giving efficient, satisfactory service*



Eclipse 1923 Model Spray Gun and Equipment still going strong in 1948 — spraying small parts in a tumbling barrel.

Today's 1948 GAT Gun has many added features and improvements.

Eclipse Spray Equipment was good 35 years ago—and our present product embodies the "know-how" that goes with experience.

Built around the Low Pressure Principle, Eclipse Spray Equipment gives increased coverage with less offspray—less wasted paint. Users report savings in material pays for the equipment.

For fast, thorough painting at lower cost—for smoother finishes, high gloss, greater durability, use—

ECLIPSE LOW PRESSURE SPRAY EQUIPMENT

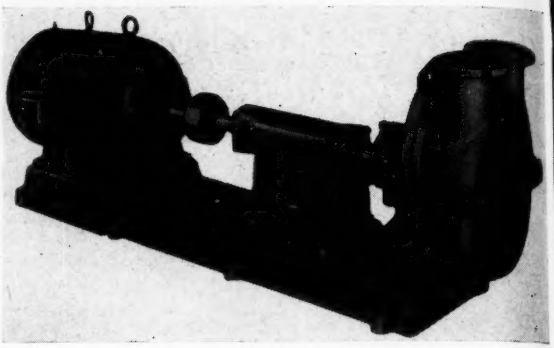
Send for complete catalog

Write: ECLIPSE AIR BRUSH COMPANY, INC.
At Fourteenth and Park • Newark 7, N. J.

1841

Spray Equipment Division
ECLIPSE
Manufacturers of Low Pressure Spray Equipment Since 1908

General Ceramics Vacuum Pump



mosphere for vacuum and two atmospheres for pressure.

Its entire "wet end" is of armored chemical stoneware and it will take any type of sealing fluid or gas with the limitations noted above. It is admirably suited for handling wet chlorine and related products.

The pump is at present furnished in a 2½-inch size only, but very shortly will be available in 1½ and 3-inch sizes. Direct or belt drive as desired can be had on all sizes and stoneware separators and cooling coils will also be furnished.

Duranite H

A new organic finish for metal, with porcelain-like qualities, has been fully tested in the field and is being marketed by the Atlas Powder Company under the trade name of Duranite H. According to E. H. Bucy, general manager for the company's plants in Stamford, Connecticut and North Chicago, Illinois, the new finish is tough, permanent, and exhibits excellent impact-resistance, adhesion, and flexibility.

Duranite H, the manufacturer states, is not brittle and does not require special equipment for application. It ensures brilliant luster and possesses remarkable resistance to humidity, soap, salt spray, acids, oils, and alcohol. Over a primer on plain or phosphatized steel, Duranite H is used as a two-coat finish capable of withstanding hard usage. On treated aluminum, acid or alkali etched, it gives an exceptionally fine one-coat finish when baked for 30 minutes at 425 deg. F. Duranite H provides an excellent one-coat finish on surface treated magnesium. On metals which cannot tolerate high fusing temperatures, its relatively low baking schedules have proven important.

SENSATIONAL

That's what customers say about ALLIED'S new non-inflammable ELECTRO COLD STRIPPER.

Removes paints, enamels, synthetics and wrinkles almost instantly. You can see the finish literally "pop off". Only one operation required. Refinish immediately.

Non-injurious to hands or metal.

Write for sample and quotations, or order 5 gallons at drum price.

ALLIED FINISHING SPECIALTIES CO.

2637 W. Grand Ave., Chicago 12.

"Three-M-ite" Resin Bond Cloth Belt

Designed with a resin bond to provide extra durability and heat resistance, an abrasive cloth belt designated as the "Three-M-ite" is announced by the Minnesota Mining & Manufacturing Co., St. Paul 6, Minn. The belt consists of aluminum oxide mineral grains, in grits from 24 to 120, coated on a flexible cloth backing with a resinoid bond.

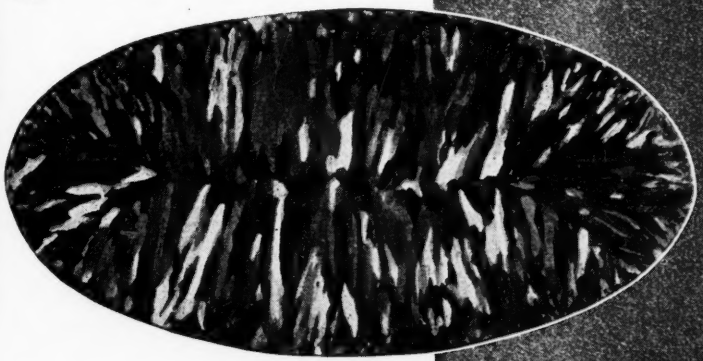
Available in widths up to 18 inches and in lengths from 60 inches up, the Three-M-ite Resin Bond Cloth Belt is said to be particularly useful on stock removal operations involving sharp contours, high belt speeds, or frictional heat.

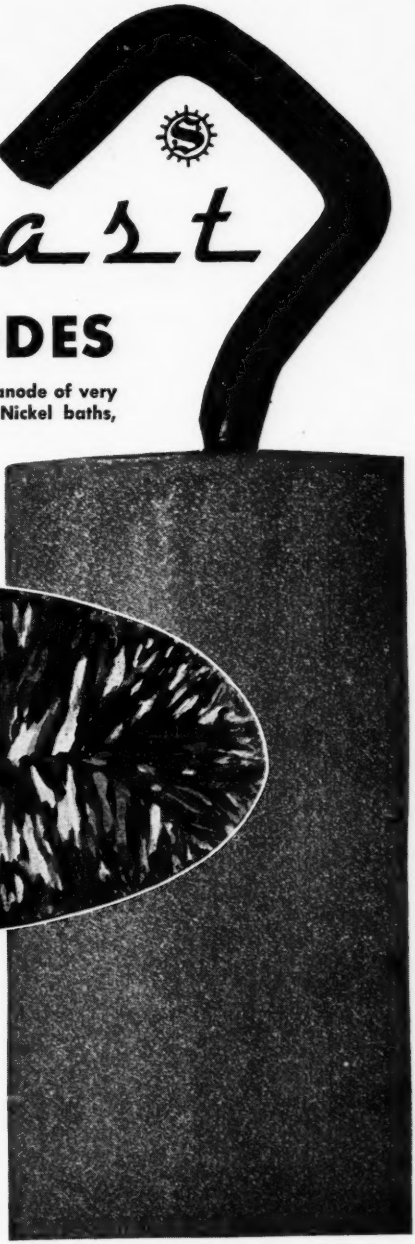
SEYMOUR

Seycast

NICKEL ANODES

"Seycast"—**An improved type of 99%+ cast anode of very high efficiency designed primarily for Bright Nickel baths, but works perfectly in any hot Watts bath having a pH of 4.5 electrometric or lower. Corrodes evenly with practically no loose nickel formation, due to long, interlocking grains radiating from a common center. Especially suitable for high current densities.**





Also

STANDARD AND SPECIAL SHAPES

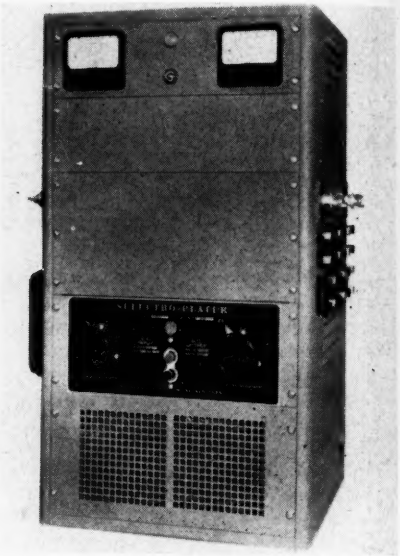
99% + Rolled Depolarized
99% + Cast Oxide Depolarized
99% + Rolled Carbon
99% + Cast Carbon

THE SEYMOUR MFG. CO.
Seymour, Conn.

DRAWCO
DRAWING COMPOUND
&
GRAINLOCK
POLISHING-WHEEL CEMENT
Two of the oldest names in the field
INDUSTRIAL LUBRICANTS COMPANY
14459 WILDEMERE AVE.
DETROIT 8, MICHIGAN

MR1 Multi-Rectifier

To meet the need for a high amperage laboratory d.c. rectifier, W. Green Electric Co., 130 Cedar St., New York 6, N. Y., offers the "Multi-Rectifier" type of power supply. This unit, designed for operation from 220 or 440-volt three-phase a.c., features wide flexibility in d.c. output.



MR1 Multi-Rectifier

The MR1 Multi-Rectifier incorporates six selenium rectifier sections which may be quickly interconnected to provide a choice of four d.c. ranges: 0-8 volts, capacity 100 amperes; 0-16 volts, capacity 50 amperes; 0-24 volts, capacity 35 amperes; and 0-48 volts, capacity 18 amperes. At any voltage and current, the output is said to have a ripple content of only about 5 per cent.

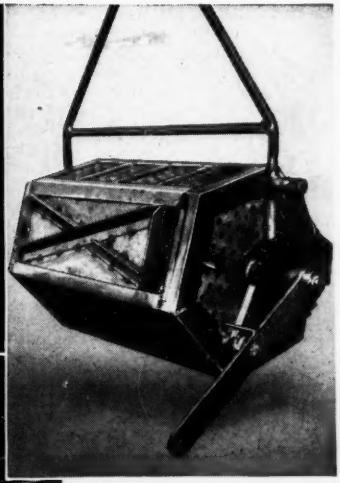
In addition to standard Multi-Rectifiers, custom-build units are available with special features, such as extension of the range to include 96 volts.

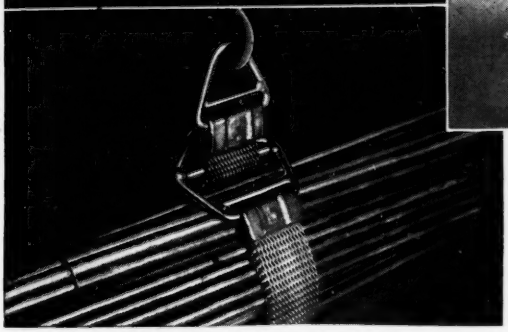
Model 335 Dustkop

A portable self-contained dust collector for collecting dust from small wheel

SEE *Cambridge* first

when you need FABRICATED WIRE ASSEMBLIES for bulk processing





Representative baskets, racks, crates, and trays, built by Cambridge, for product processing or movement.

Call in a Cambridge field engineer to discuss the proper type of fabricated wire units for your bulk handling operations. Let us show you how Cambridge Engineered wire fixtures are specially built from any metal or alloy for any bulk operation — plating, dipping, spraying or heat treating.

Or, for information on the entire Cambridge line, write for your FREE copy of this illustrated folder.

There's a Cambridge Sales-Engineering Office near you

CAMBRIDGE WIRE CLOTH CO.

Department H-10 • Cambridge 4, Maryland

Visit our Booth No. 1424 at the METAL EXPOSITION, PHILADELPHIA, PA.

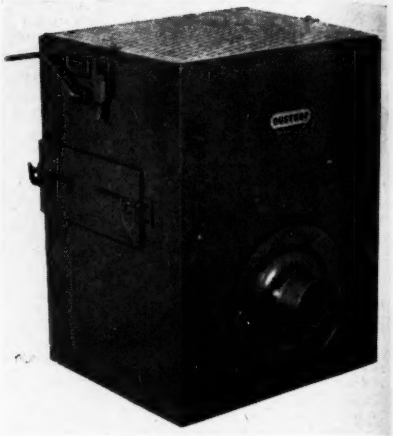
grinding and sanding and lint from buffing and polishing operations has been added to its line of industrial dust collectors by the Aget-Detroit Co., 378 Main at Washington Sts., Ann Arbor, Michigan.

Designed for continuous dust collecting work on production operations, the Model 335 Dustkop is sufficiently compact (12 x 14 x 18 inches high) to permit it to be installed on or under a bench while its light weight (43 lb.) is ideal where portability is essential.

A rating of 320 c.f.m. at 1½-inch water lift on 3-inch inlet is developed by a continuous duty, 3,600 r.p.m., ⅓ h.p., 110-volt, a.c. motor, direct driving a self-clearing paddle wheel fan.

After passing through the fan, the dust-laden air is directed over the surface of the dust collecting tray which consists of a series of baffles to separate out the lint, chips, wire, and heavier dusts. A filter of non-infammable spun glass forms the top of the dust collector and provides a second stage cleaning of the air before it is returned to the working space.

Periodic shakedown of this filter is quickly accomplished with the hand shaker crank mounted on the side of the cabinet. Immediately below the crank for convenience is the dust tray, which can be quickly removed for emptying, when required.



Model 335 Dustkop

Want to Color Copper?

McKeon's "Liquid Sulphur"

is

"The Oxidizing Agent of Today"

Simple, Easy to Use.

TRY

SULPHUR PRODUCTS CO.

GREENSBURG 6, PA.

Oakite Composition No. 15

A cold solvent material, known as Oakite Composition No. 15, designed to permit fast, thorough removal of paint and similar finishes from metal surfaces, has been announced by Oakite Products, Inc., 120 Thames St., New York 6, New York.

Oakite Composition No. 15, the manufacturers report, is effective in removing baking japans, wrinkle finishes, nitrocellulose lacquers, and synthetics such as alkyds, phenolics, ureas, vinyls, and so on, from such metals as steel, galvanized iron, die castings, aluminum, copper and brass, with no attack on the metal.

Designed for room temperature, Oakite Composition No. 15 may be applied by tank immersion or by swabbing or brushing. This is followed by a hot pressure-rinse to remove loosened paint particles.

Scotch-Weld Bonding Film

An unsupported film of pure adhesive that provides a metal-to-metal bond resistant to shear tests up to 3,500 pounds per square inch has been announced by Minnesota Mining and Manufacturing Co., 900 Fauquier Avenue, St. Paul, Minnesota.

You can produce on any material the following surface finishes:

FELT - SUEDE LEATHER - MOHAIR VELOUR - VELVET - CARPET

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

TEMPERATURE INSULATION • SOUND DEADENING • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE

DECORATIVE USES

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

FURNITURE UPHOLSTERY • SUEDE LEATHER • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR • CARPET

with these patented and trademarked Rayco specialties:

FELT AND SUEDE SURFACE

*"Raymix"—a flock of rayon fibres, trademarked under U. S. No. 427949 to produce a suede effect of utmost realism on any surface.

*"Kingcote"—a cotton flock trademarked under U. S. No. 423572, producing a suede effect at minimum cost.

MOHAIR, VELOUR AND VELVET SURFACE

"Raycote"—a flock composed of uniformly cut rayon fibres to produce on any surface a pile effect such as velvet, plush, or velour. Made under U. S. Patent No. 2014947.

SYNTHETIC CARPET

"Harecote"—a flock composed of animal fibres, produces a durable carpet or rug material.

Request Free Color Card of Actual Samples

**Rayon Processing Co. of R. I., Inc.*

*Registered Trademark

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

65 MOSHASSUCK STREET • PAWTUCKET, R. I.

POLLAK PAINT CO.
715 Main St.
Buffalo, N. Y.

LAMBERT-NEW ENGLAND CO.
79 Sudbury St.
Boston, Mass.

H. R. MEININGER CO.
409 16th St.
Denver, Colo.

J. GORDON SMITH CO.
3901 Main St.
Dallas, Texas

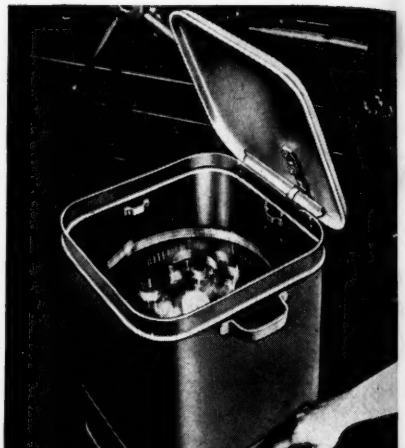
Called "Scotch-Weld" Bonding Film, it is transparent, roughly resembles cellophane in appearance, is provided in rolls like tape, and is not tacky to the touch. It is said to be one hundred per cent adhesive, with no supporting material in the film.

The film is placed between units to be bonded and is cured by simultaneous application of heat and pressure—a heat of 300 to 500 deg. F. for 5 to 60 minutes, and a pressure of 25 to 100 pounds per square inch, both varying with the type of bond desired.

Listed as major Scotch-Weld qualities are high bonding strength to a wide variety of materials, ease of application, simplicity of production line use, long life on the roll, assurance of adhesion over the entire surface with no "starved" areas, and inertness in water, oils and most solvents. Preparation of surfaces requires only conventional cleaning, it is claimed.

Protectoseal "Air-Matic" Automatic Parts Washer

Known as the "Air-Matic," an automatic metal parts washer which is claimed to offer complete fire protection in the use of flammable cleansing solvents has been introduced by The Protectoseal Co., 1920 S. Western Ave., Chicago 8, Ill. Compact and portable, the washer can be set up alongside production machines or used in maintenance and repair shops.



Protectoseal "Air-Matic" Automatic Parts Washer

Washing of parts is accomplished by moving a perforated basket, with contents, up and down through a solvent. According to the manufacturer, the Air-Matic is so designed as to produce the least possible turbulence and therefore permit maximum flow of liquids over the parts. The machine utilizes a reciprocating air engine which is said to be economical and efficient in operation and to also reduce the fire hazards to a minimum. In the event the contents of the washer should become ignited, the cover is designed to automatically close and snuff out the fire, it is stated.

Said to operate on any compressed air supply, the Air-Matic Automatic Parts Washer is supplied complete with all necessary attachments.

GOLD PLATING SOLUTIONS
In All Colors
Guaranteed 100% Pure Gold Content
Troy Weight - Color Constant
Tarnish Resistant
Proven Quality by the Acid Test
Write or call our experts about your plating problems
Davis-K-Products Co.
54 West 22nd St., New York 10, N. Y.
Oregon 4-4108
4-4109

For a real good polishing job use
Keystone TURKISH Emery
FRESH SUPPLY AVAILABLE
KEYSTONE EMERY MILLS *Write for Sample* 4316 Paul St., Phila., Pa.

FOR BIGGER PROFITS
Buff it with a VANOTT!

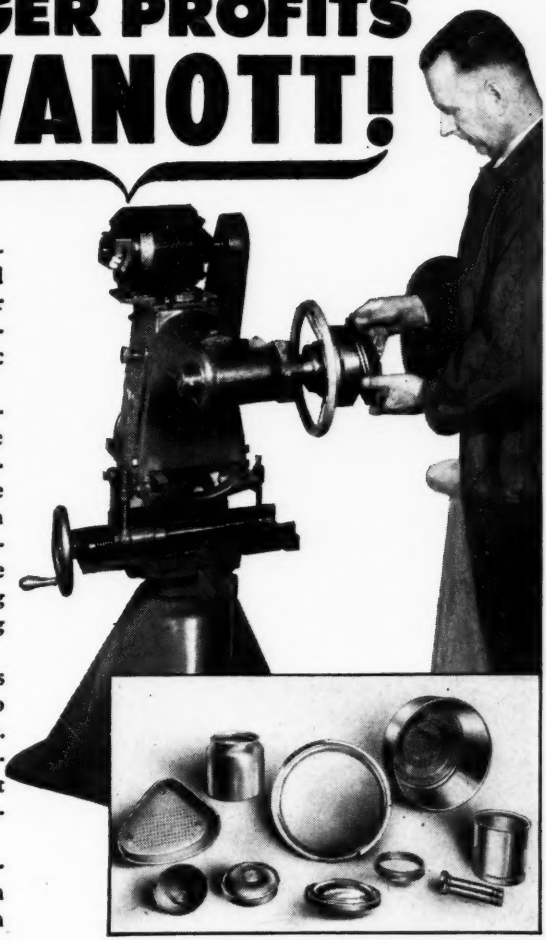
● Production costs are down—production volume is up—and *profits are bigger*—when your buffing and polishing are handled by a Vanott Semi-Automatic Buffing Machine, Type V-1.

Pots, pans, trays, cylinders—an article of almost any shape and size can be buffed and polished on the Vanott V-1 machine with a finish of uniformly high quality. One man can easily operate two V-1 machines at once—one at either end of buffing lathe or jack—thereby speeding up production.

Heavy and sturdy, the V-1 has all vital mechanism enclosed to protect it from abrasive wear. Swiveling of the head is performed automatically by foot pedal—a special ease-of-operation feature.

We'll be glad to make a production-cost estimate based on samples of your work in rough and finished condition. No obligation, of course.

Write for further information or send samples for our estimate.



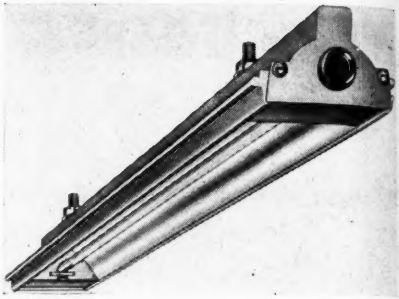
Typical examples of the wide variety of shapes handled on the Vanott V-1 machine.

VANOTT MACHINE CORP.
222 Colgate Avenue
Buffalo 20, New York

"Chromalox" All-Metal Electric Radiant Heater

High heat intensity and utilization of almost the entire infra-red band are features of the "Chromalox" All-Metal Electric Radiant Heater announced by the Edwin L. Weigand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa. The glassless glareless heater is designed for baking, drying, preheating, and dehydrating where a long wave infra-red heat source is desired and where rugged all-metal construction is preferable.

The heater has a high-temperature enclosed type Chromalox heating element mounted in a rigid extruded aluminum body with an efficient reflector sheet of highly polished Alzaked aluminum, which can be easily cleaned or replaced if necessary. Tongued and grooved sides and two sliding captive bolts facilitate fabrication of heater sections into various working patterns. The heating elements are mounted at the focus of a parabolic reflecting surface, which is said to result in maximum heat radiation uniformly distributed over the surface to be heated. A negligible amount of visible light is produced from the Inconel-sheathed tubular electric heating unit

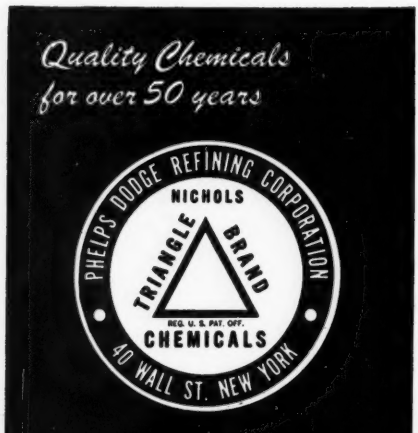


"Chromalox" All-Metal Electric Radiant Heater

which is designed to operate at temperatures of 1,000 to 1,400 deg. F., depending upon the wattage of the heating element.

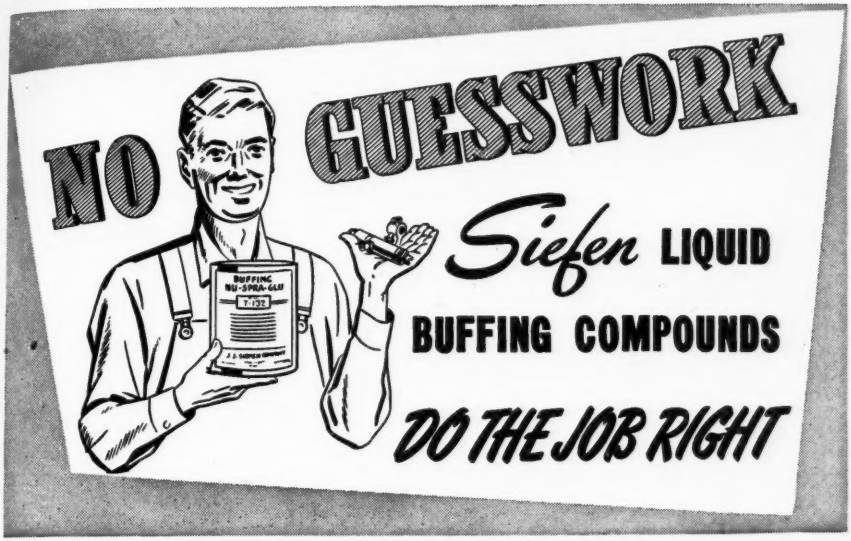
Glassless construction permits an unobstructed, unfiltered path of infra-red radiation of the long wave lengths. The interlocking and sliding bolt features permit maximum flexibility in fabricating groups of heaters into patterns—arcs, circles, squares, and so on—for almost every conceivable infra-red application. Adjacent sections can be interlocked on a plane or, by means of hinge-acting joints, can be rotated up to 25 deg. Simple angle-iron frames can be formed to support the assemblies after the working pattern has been determined. The assemblies are 4 inches in depth and, because of the shallow construction, the heat source can be brought close to the work.

Said to be ideally suited for use with conveyor belts, the Chromalox Radiant Heater can, it is claimed, be used safely in ambient temperatures of 400 deg. F. or higher, and is designed so that heating elements of same or different wattage can be changed on the job in a minimum of time. The three standard body lengths are 25, 31, and 47 inches, with respective heated lengths of elements 17, 23, and 39 inches. The standard height is 4 inches. Other lengths can be readily made as required. Various wattages can be provided, depending upon the purpose for which the heater is intended.



DeVilbiss AGA Automatic Spray Gun

Product of The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio, a new AGA gun has been developed to meet the need



TOP QUALITY • FAST CUTTING • LONG LASTING

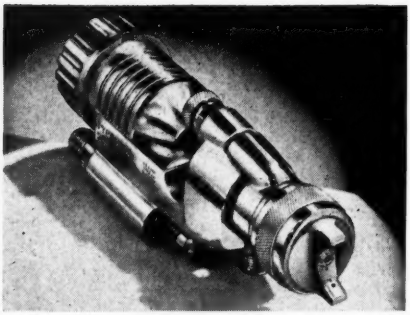
THE SIEFEN COMPANY originated the spray method of applying compound, developed trouble-free spray guns for most economical use of the spray method and is keeping ahead of the field in the manufacture of the finest quality liquid compounds.

Siefen Liquid Compounds cut as fast as bar compounds, are non-settling, clog-free, and fire resistant.

Our engineers throughout the country are at your service to demonstrate how the Siefen Spray Method can cut your buffing costs.

AND REMEMBER —
NUGLU or BRUSHING NUGLU
(Nuglu and abrasive mixed) are being used for recoating abrasive belts and discs.

J. J. SIEFEN COMPANY
5633 LAUDERDALE • DETROIT 9, MICH.



DeVilbiss AGA Automatic Spray Gun

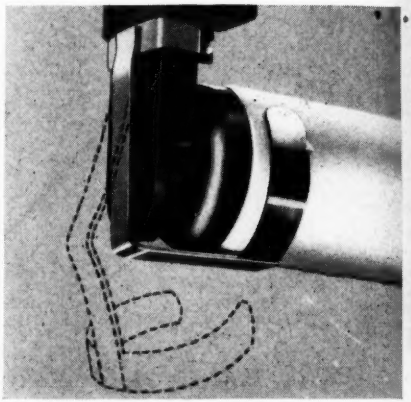
for a quick-acting automatic spray gun with increased capacity and simple controls. It is built so that it is adaptable to any type spray finishing machine. The gun is small in size (only 7 inches long), light in weight (¾ lb.) and can be supplied with mounting adapters that permit tipping and turning it to any conceivable position.

The manufacturer states that the gun will open, spray, and completely close 5,400 times per hour, controlled entirely by an air-operated piston. This construction is said to provide positive, leakproof shut-off of fluid and air at the end of each spraying cycle. The simple and efficient design of the AGA gun, with comparatively few parts, makes possible easy maintenance, easy cleaning, and long service, it is claimed.

The AGA gun is said to be adaptable to the most delicate or the heaviest types of product finishing. The same wide range of air caps and fluid tips used with the DeVilbiss MBC hand spray gun are interchangeable on the AGA gun.

Den-El Safety Clip

Product of the General Scientific Equipment Co., 27th and Huntingdon Sts., Philadelphia 32, Pa., and designed



Den-El Safety Clip

to prevent fluorescent light bulbs from falling, the Den-El Safety Clip is said to hold fluorescent tubes in place regardless of the amount of vibration to which they are subjected.

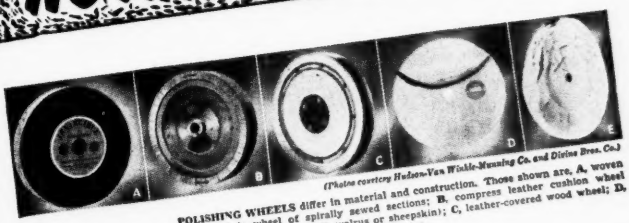
According to the manufacturer, the resilient stainless steel Den-El Safety Clip can be installed permanently by simply tightening a nut on a machine screw. The band that holds the tube is easily pulled aside to facilitate replacement of the tube, as shown in the photograph, and resumes the holding position upon release.

BERKS REFINING Company

• Recover your valuable waste solvents. The BERKS *individual batch* method—under rigid laboratory control—assures quality results. Tell us solvents you wish restored and our money saving quotation will reach you promptly.
Write P. O. Box 52, Pottstown, Pa.
Phone: Birdsboro 2-2956.

★ ***GUARANTEED INSULATED PLATING RACKS —***
Plus REDDY-RACK replaceable workholder feature.
Quick delivery. Write, wire or 'phone
NATIONAL RACK COMPANY, INC.
22-06 Merlot Avenue, Fair Lawn, N. J. **Tel. Fair Lawn 6-3312**

SEND NOW for your copy!



(Photos courtesy Hudson-Van Winkle-Munning Co. and Divine Bros. Co.)

POLISHING WHEELS differ in material and construction. Those shown are, A, woven cotton fabric wheel of spirally sewed sections; B, compress leather cushion wheel (cushions also may be of felt, walrus or sheepskin); C, leather-covered wood wheel; D, loose-sewed buff; E, buff of folded construction

What to Watch in Metal-Polishing Costs

Proper application of wheel, abrasive, adhesive and method of wheel set-up is essential to low-cost polishing

BY E. C. BLEAM
ABRASIVE ENGINEER
SIMONDS ABRASIVE COMPANY

SIMONDS ABRASIVE CO.
PHILADELPHIA, PA.

Do your polishing costs vary from job to job on similar operations? This authoritative article contains information you need to help you to keep costs at a stable minimum. Written by a Simonds engineer and published in AMERICAN MACHINIST, it gives helpful suggestions on wheel set-up, head forming, wheel drying, together with polishing grain recommendations. Send now, and for top results on all your polishing jobs use Borolon grain, scientifically manufactured in our own electric furnace plant. Samples of desired grain sizes on request.

SIMONDS ABRASIVE CO.
Philadelphia, Pa.
Grinding Wheels and Abrasive Products

SIMONDS
Arvida, Quebec
Electric Furnace Abrasives

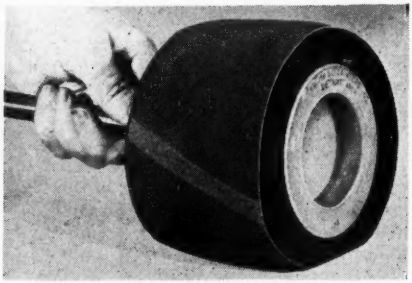
SIMONDS ABRASIVE COMPANY
is a division of
SIMONDS
Fitchburg, Mass.
Saws, Machine Knives, Files

SIMONDS Other Divisions SIMONDS
Lockport, N. Y. Special Steels
Montreal, Can. Simonds Products for Canada

SIMONDS ABRASIVE COMPANY Tacony & Fraley Sts. Philadelphia 37, Pa.

Nu-Matic Grinder Wheel Unit

A power tool wheel unit using standard-type abrasive bands to surface grind or sand curved, irregular surfaces or contours, as well as flat areas, is now being manufactured by Nu-Matic Grinders Inc., 10304 W. McNichols Rd., Detroit 21, Mich. The design includes a pneumatic rubber drum inflated at low air pressures (3 to 10 lb.) for adjustment to suit work requirements. The manufacturer states that varied speeds, adjustable drum compression, and the use of a wide variety of abrasive grits provide the unit unusual flexibility and permit an almost infinite variety of finishes to be obtained.



Nu-Matic Grinder Wheel Unit

Since the abrasives used are standard and of band type, they can be changed instantly. The rubber drum of the unit is 5 inches in diameter, accommodating abrasive bands 3½ inches wide, is shatterproof, and is constructed for heavy duty and long life, it is claimed. Due to a lightweight aluminum core, the unit weighs only 2 lb.complete. By means of available adapters, the Nu-Matic can be made to fit any power tool shaft.

ALLWOOD

"Vienna Brand" Lime

Made from Limestone that is identical in chemical analysis and geological structure with European Imported Lime. Tests show a "lime cake" made from Allwood "Vienna Brand" Lime equals the finish made from imported lime.

WRITE FOR FULL PARTICULARS

ALLWOOD LIME COMPANY

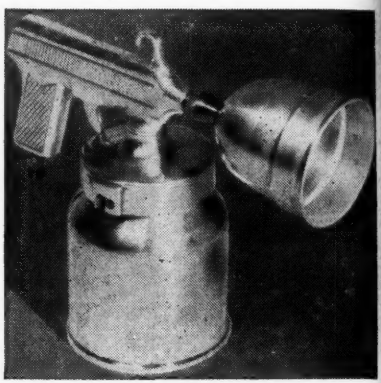
Manitowoc • Wisconsin

Tornado Combination Blast Gun

The Tornado Combination Blast Gun, manufactured by Engineered Products Inc., 1224 Speer Blvd., Denver, Colo., may be used for either sandblasting or solvent spraying. It is said to improve and simplify production cleaning and finishing in automotive and industrial fields.

The Tornado Blast Gun may be connected to any air line and is equipped for sandblast operations or spraying solvents and liquids. The nozzle is easily changed by loosening a retaining nut and slipping another nozzle in place.

Two attachments are supplied with the gun, an "abrading" case-hardened nozzle for use in blast operations and a "solvent" nozzle for use with oils or chemicals. The abrading nozzle incorporates a "safety" top that drops off when the barrel needs replacement.



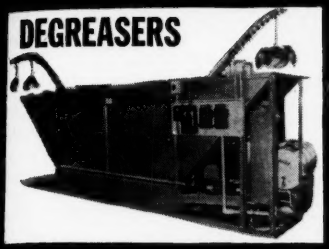
Tornado Combination Blast Gun

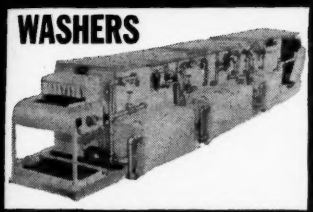
The Tornado Combination Blast Gun is equipped with a 3-pint container designed for quick, sure locking with a quarter turn. The turbulence shield is designed to stop and retain the bulk of spent abrasive that ricochets from the surface being worked.

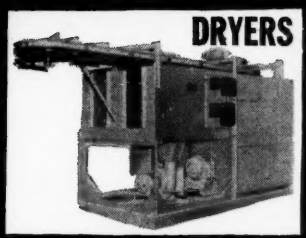
New G-S Protective Mask

A new G-S Protective Mask, consisting of a plastic shield held in position by an adjustable elastic head band, and replaceable laminated filters of extra thickness, has been announced by the General

Is METAL PARTS CLEANING *a bottleneck in your plant?*







A complete line of OPTIMUS Equipment is available in standard and special sizes to meet every metal parts cleaning problem and allied processing applications.

OPTIMUS VAPOR DEGREASERS are available in all various types and stages, straight vapor, vapor-spray, liquid-vapor and combinations of these. All sizes from simple batch type degreasers to custom built monorail or cross rod conveyor models.

OPTIMUS METAL PARTS WASHERS — single or multiple stage — screw or conveyor, mesh belt or monorail types. Can be applied to a wide range of operations as well as the handling of rust preventatives and other coatings.

OPTIMUS DRYERS embody a specially designed system of directional air jets which assure spotless drying after plating or polishing and before subsequent painting, plating or lacquering.

Submit your metal parts cleaning problem to our engineering staff. SEND FOR complete catalog of OPTIMUS Equipment.

Distributors of
"Midsolv"
A Perchlorethylene Degreaser Solvent
"Triclene D"
A Trichlorethylene Degreaser Solvent

On display
NATL. METALS SHOW — Phila.
Oct. 25-29 — Booth 612

OPTIMUS EQUIPMENT COMPANY
15 Water Street **Matawan, N. J.**
Offices in principal cities

OPTIMUS EQUIPMENT
FOR CLEANING · RINSING · DEGREASING · PICKLING AND DRYING OF METAL PARTS

New G-S Protective Mask

Scientific Equipment Co., 2700 W. Huntingdon St., Philadephia 32, Pa. The mask is designed to protect throat, nose, and bronchial tubes from larger particles of non-toxic dusts that irritate these membranes, causing discomfort and increased susceptibility to infection. Important from the standpoint of the wearer is the fact that the mask is light, cool, and comfortable.

The effectiveness of the G-S Mask is readily seen by filter discoloration caused by dust, as indicated in the photograph.

Sherwin-Williams Lustral "67" Enamel

A new line of low-cost synthetic enamels to be marketed under the name Lustral "67" is announced by the Sherwin-Williams Company's Industrial Division, Cleveland 1, Ohio.

The new finish has been designed as a companion product to S-W's recently introduced Kem Lustral finishes. However, Lustral 67 is intended primarily for interior use, although it may be used satisfactorily for some types of exterior service.

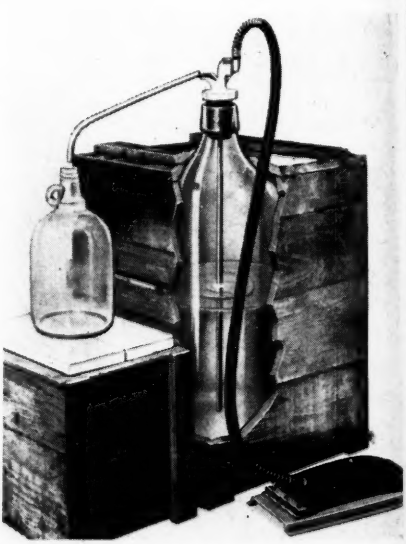
The new synthetic is recommended for general industrial painting, product finishing and maintenance work. It is suitable for brushing, spraying, or dipping and may be either air-dried or baked.

The color range of the new line is identical with that of Kem Lustral—21 colors in addition to gloss white, semi-gloss white, and black.

Improved G-S Acid Pump

Safe and convenient transfer of acids and other liquids from carboys, barrels, or drums is said to be possible with the improved foot or hand-actuated acid pump announced by the General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia 32, Pa. The manufacturer claims that liquids flow smoothly and stop instantly. They come in contact only with the corrosion-resistant tube and cannot affect other parts. No tilting of the container is necessary and danger of a slip, a splash, or a spill is minimized. When removed from the container, the liquid drains completely.

G-S pumps with lead tubes are suitable for sulphuric, hydrochloric, hydrofluoric acids, and many others. Saran plastic tubes are recommended where the pump is to be used in nitric, muriatic, citric, phosphoric or acetic acids, bleaches, and other chemicals.



Improved G-S Acid Pump

PRODUCT LITERATURE

"Seeing is Deceiving" is the title of a 12-page entertaining and instructive booklet published by The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y., which is designed to demonstrate that appearances can be deceiving and that quality plating depends on tests. Copy free upon request.

"Automatic Spray Gun Type AGA" is the title of Folder IE-C-104 issued by The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio. The two-color, four-page attractively illustrated folder describes the design features of the AGA gun and suggests uses for this product. Copy free upon request.

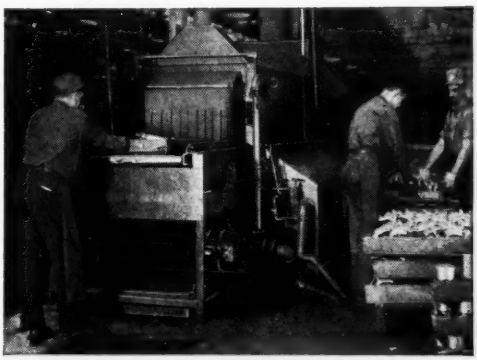
Lima Electric Motors. The Lima Electric Motor Co., Dept. DX, Lima, Ohio, has released a six-page two-color bulletin illustrating and describing the company's line of electric motors for industrial applications, as well as its gearshift drives, pedestal grinders, and polishing and buffing lathes. Copy of Bulletin MB-1 free upon request.

Technical Service Data Sheet No. P-100-34. A technical service data sheet describing the methods of testing Deoxylite-treated (acidulated) rinse baths is being distributed by the American Chemical Paint Co., Ambler, Pa. Copy free upon request.

Parlon Booklet. A revised edition of a technical booklet on Parlon, Hercules Powder Company's chlorinated rubber, now is available. The 44-page, illustrated, revised edition contains considerable new information on the use of Parlon in protective coatings, printing inks, paper coatings, textile finishes, and many other applications. To illustrate Parlon paper lacquer, the cover of the booklet is coated with a Parlon-base lacquer. Copy free upon request to Hercules Powder Co., Wilmington, Delaware.

PUMP PARTS ARE WASHED

This METALWASH Machine is automatically washing and rinsing pump parts in the plant of a leading manufacturer. Chips, cutting oil, grease and shop dirt are quickly, thoroughly removed from pump castings and machined parts between machining operations and prior to assembly.



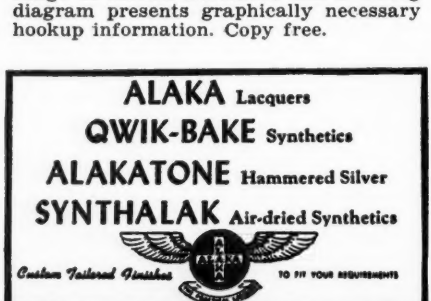
If you have a **metal cleaning, pickling** or **drying** problem, let us solve it.

METALWASH MACHINERY CORP.
149 - 155 SHAW AVENUE IRVINGTON 11, NEW JERSEY

The Lea Manufacturing Co., Waterbury, Conn., has issued an attractive booklet in celebration of the twenty-fifth anniversary of the founding of the company. The booklet outlines very briefly the company's founding and growth. Stressing the company's interest in employees, the booklet describes various company policies and practices of direct benefit to employees, thus striking a new note in anniversary announcements.

Belke Salt Spray Testing Machine Bulletin. Bulletin 709, a four-page, two-color bulletin describing in detail Belke Salt Spray Machines for salt spray and other tests to determine the corrosion resistance of bare metal and the effectiveness of protective coatings such as anodized, electroplated or galvanized coatings, paints, rust preventatives, and so on, is being issued by the Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill. Copy free upon request.

Richardson-Allen Selenium Rectifiers. An eight-page catalog in color describing, illustrating, and presenting engineering data on a complete line of selenium rectifiers for electroplaters, electrotypers, anodizers, and all other industrial users of a.c. to d.c. power conversion equipment is announced by the Richardson-Allen Corp., 15 W. 20th St., New York, N. Y. Units covered range from 6 to 28 volts with a maximum of 4,000 amperes in a single cabinet, and include basic models, remote controls, self-contained units, and many special purpose units. Tables show ratings of the wide range of models available, and a wiring diagram presents graphically necessary hookup information. Copy free.



Index to A.S.T.M. Standards. 240 pages. Paper covers. Published May 1948.

This publication is an adjunct to the 1946 Book of Standards and the 1947 Supplement so that any of the 1,500 standard specifications and tests listed may be located readily. All items are listed in the index under appropriate key words according to subject. A list of the specifications and tests in numerical sequence is also furnished. The index may be obtained without charge on written request to the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pennsylvania.

A 24-page informative booklet, entitled **"The Inside Story,"** now being issued by the Metal-Clean Solvent Corp., 1935 N. Paulina St., Chicago, Ill., not only tells how Metal-Clean solvent cleaners offer a positive means of keeping rejects down and achieving the high standards of production, inspection, and assembly so important to the quality of the finished product, but tells also how the application of these solvents is practical for the most difficult problems of soil removal.

A description of "soil controlled" cleaning explains that Metal-Clean solvent cleaners operate by an intricate system of dispersion, emulsification, and suspension. Numerous advantages of "soil controlled" cleaning are listed. Technical data, based on the latest developments in metal cleaning practice, are also included in the booklet. Copy free.

Cesco Catalog. A catalog released by the Chicago Eye Shield Company not only lists the company's products but also tells where to use, how to use, how to maintain, and how to select industrial protective equipment, and serves as a guide to accident prevention. Correct safety procedures are explained in the book. Complete buying data on cup goggles, welding goggles, welding helmets, face shields, respirators, masks, hoods, and protective aprons and sleeves are also presented. Facts presented on these technical pages are based on official reports and recommendations, and much of the information applies to all protective equipment, regardless of make.

Copy of the 64-page Cesco catalog can be obtained by writing the Chicago Eye Shield Co., 2300 Warren Blvd., Chicago 12, Illinois.

Laboratory Equipment Folder. A six-page folder and price list describing laboratory rubber tubing, precision electric interval timer, and oxyPhen pH paper has been issued by the A. Daigger & Co., 159 W. Kinzie St., Chicago 10, Ill. The folder contains complete descriptions of the operating characteristics of the items described. Copy free upon request.

Coated Abrasives. A 24-page catalog containing list prices and general information on coated abrasives has been published by the Michigan Abrasive Co., 1111 Bellevue Ave., Detroit, Mich. Data are presented on aluminum oxide, garnet, and silicon carbide rolls, papers, belts, discs, and sheets, as well as on flint paper reams, emery cloth reams, lapping compounds, and special compounds. In addition, a grading chart showing comparable symbol numbers and screen sizes of grits is included.

Copy of Catalog No. 6 is available free.

G.E. Chemical Department Products. An 18-page illustrated booklet describing briefly the wide range of products manufactured by the General Electric Company's Chemical Department is now being offered. Products of the company's Plastic Division, Resin and Insulation Materials Division, Metallurgy Division, and Compound Division are described, together with their many industrial applications.

Copy of Booklet No. CDP-576 is available by writing to the General Electric Co., Chemical Dept., 1 Plastics Ave., Pittsfield, Massachusetts.

Respiratory Protection Chart. A chart suggesting the proper respiratory protection against more than 150 specific dusts, vapors, and gases has been published by the American Optical Co., Southbridge, Mass. The chart presents a summary of recommendations made by the Safety Engineering Division of the American Optical Company for the use of the company's R-1000, R-2000, and R-9100 respirators, all three of which have been approved by the U. S. Bureau of Mines. The respiratory hazards are listed alphabetically in the chart, with the proper protection clearly and easily identifiable. Copy free upon request.

Cut Costs, Increase Output with this Fast-Baking Oven

Despatch "RS" Finish Baking Ovens are very successful for repair shops and plants with small batches of products. Up to 50% faster baking . . . high volume air flow . . . approved safety system . . . gas or electric . . . moderate investment and low operating cost. Comes ready for operation—no engineer required to set it up.

Applications: For baking thermoset finishes on coils and stators; phenolic coatings on grills and unit assemblies; finish work on japans or lacquers; drying latex, ink, glues, asphalt; light core baking, dehydrating; preheating plastics, aging, and drying, etc. Fast curing or drying of synthetic films, dulux, lacquer, enamels.

Write for bulletin on RS-4 and RS-5 Ovens.

DESPATCH OVEN CO.
Established in 1902
327 Despatch Bldg. Minneapolis 14, Minn.

"Parco Cleaners" is the title of a four-page technical publication issued by the Parker Rust Proof Co., Detroit 11, Mich. Emulsion and solvent type cleaners, acid type cleaners, and alkali type cleaners are described in the publication. Copy free upon request.

Randall Engineered Equipment. A four-page two-color bulletin illustrating and describing "Ramco" degreasers and automatic washing machines for metal parts is now being distributed free by the Randall Manufacturing Co., Inc., 410 E. 93rd St., New York 28, New York.

How to Prepare Metal Surfaces Correctly for Painting is the subject of a four-page folder being distributed by the American Chemical Paint Co., Ambler, Pa. Uses for the many surface preparation products manufactured by the company are discussed. Among the products discussed are Deoxidine, Rhodine, Granodine, Thermoil-Granodine, Duridine, Lithoform, Zinodine, Peroline, Alodine, and Deoxylite. Copy free upon request.

"Directory of Link-Belt Products" is the title of Book No. 1953-C available from the Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill. As its title implies, the 50-page catalog lists in detail the various catalogs and Link-Belt products. Illustrations of many Link-Belt products are included. Pictures of Link-Belt plants, a list of Link-Belt branch offices, export division offices, domestic and export distributors, and a brief history of the Link-Belt Company complete the catalog. Copy free upon request.

SOLVENTS RECOVERED BY
THE LOFGREN PROCESS

We RECOVER YOUR
SOLVENTS and THINNERS
From - Sludge - Waste - Wash - Spoiled Lacquers, etc.
Each customer's shipment, whether one drum or a carload, receives *proper and separate treatment.* Write to:
SOLVENTS RECOVERY SERVICE, INC.
1019 Broad Street — or — Newark, N. J.
HAMMOND SOLVENTS RECOVERY SERVICE
241 Brunswick St. — Hammond, Ind.

"Fleetkleen Filters and Filtering Equipment" is the title of a descriptive brochure issued by Co-Operative Industries, Inc., 100 Oakdale Rd. Chester, N. J. Design, construction, and operating features of Fleetkleen Filters are described and advantages of the units cited. Photographs of the various models are included. Copy free upon request.

Bulletin 68. A 4-page, 2-color, attractively illustrated bulletin covering five different lines of lamps for heavy duty industrial service has been issued by Radiant Lamp Corporation, 300 Jelliff Avenue, Newark 8, N. J. Illustrated and described in the bulletin, designated as Bulletin 68, are Radiant Hi-Flood R40 floodlights for indoor and outdoor use, Hi-Heat infra-red lamps for industrial drying service, spatterproof lamps to withstand hot spatter and rough handling in welding, weatherproof lamps for outdoor illumination of large areas, and standard lamps for general lighting service. Copy of Bulletin 68 free upon request.

Alvey-Ferguson Washing Machine Book. Emphasizing the fact that every metal product cleaning problem is different, a 28-page two-color book recently published by The Alvey-Ferguson Co., Dept. PF, Disney St., Cincinnati 9, Ohio, takes the reader through the process of what to look for when selecting a washing machine.

Profusely illustrated to give top management, as well as production and plant engineers, the complete "inside story" on the factors to be considered in making a proper choice of equipment for thoroughly cleaning metal parts and products, this book carries the reader quickly through all construction features. The skeleton, pump screening facilities, heating systems, skim box drain and overflow, inspection and cleanout doors, dryers, and various types of conveyors are detailed for quick comparison. The "Super Spray" washing action that effects savings in time and materials is clearly explained and illustrated.

A section of the book is devoted to completely coordinated conveyorized systems engineered by The Alvey-Ferguson Company to solve specific problems in leading industries. Flow charts show clearly how Alvey-Ferguson cleaning and conveying equipment can be integrated into a line production system.

Eberbach Announcer No. 48-6-31 is currently being distributed by Eberbach & Son Co., Ann Arbor, Mich. The 16-page three-color booklet describes several items of laboratory equipment manufactured by the company and includes an article on the development of chemical porcelain. Copy free upon request.

"Stripping with Magnus Stripit" is the title of Bulletin 41, a four-page, two-color bulletin issued by the Magnus Chemical Co., Inc., Dept. PF, Garwood, N. J. The bulletin describes the various finishes which can be removed by Magnus Stripit, and outlines suggested methods of using the material. Illustrations emphasize various applications for Stripit and highlight steps in the removal process. Copy free upon request.

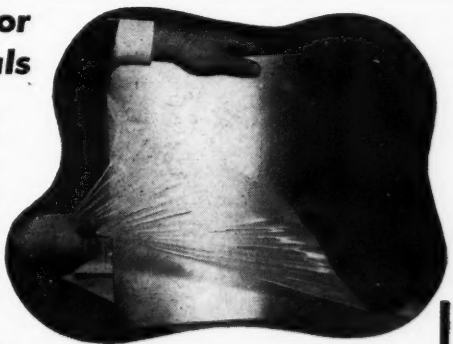
"Fume Duct Linings" is the title of a two-page two-color circular being distributed by The Ceilcote Co., Rockefeller Bldg., Cleveland 13, Ohio. Formulation of Ceilcote Spray Grade for linings of fume removal systems is outlined and chemical properties of Ceilcote are listed. Application instructions and data are furnished. Copy free upon request.

"Dustube" Dust Collectors. A two-color folder describing and illustrating the advantages of "Dustube" Dust Collectors is now being issued by the American Wheelabrator & Equipment Corp., Mishawaka, Ind. Copy free upon request

---

Spray Booth Shield Folder. A four-page two-color illustrated folder describing the use of Ramsell's Spray Booth Shield is being issued by Ramsell Products, Inc., 712 S. 5th Ave., Maywood, Ill. Ramsell's Spray Booth Shield is described as being a "ready-to-use" spray booth coating material formulated with vinylite resins, product of the Bakelite Corporation. The advantages in the use of plastic coating material are outlined in the folder. Copy free upon request.

A Strippable Plastic for the Protection of Metals



Striplastic is a protective plastic applied by spraying, dipping or rolling. It is used on stainless steels, high polished metal sheets, sheets in cold working or drawing, tools, dies and parts, and on sheets or metal parts before packaging. It protects against scratching and abrasion, and against rust.

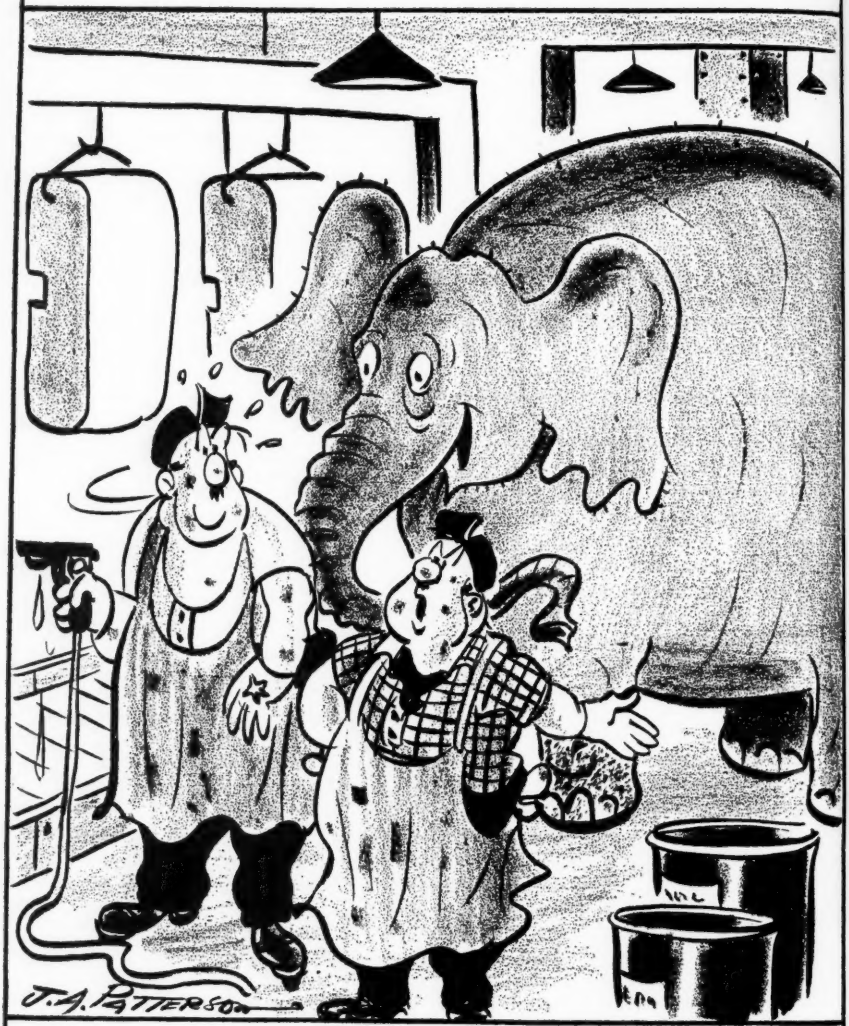
THE

STRIPLASTIC

Among many advantages, it is nontoxic, possesses great tensile strength and is easily stripped off in one piece. Write for complete information on this new strippable plastic.

COMPANY
10828 QUEBEC AVE.
CLEVELAND 6, OHIO

The Finishing Touch — **By J. A. Patterson**



"No, I haven't seen your snakes. Now get back to work!"

Opportunity Section

WANTED

Specialized representatives or jobbers to distribute "Spray Booth Shield." Please refer to our ad page 59.

RAMSELL PRODUCTS, INC.
712 S. 5th Ave., Maywood, Illinois

Wanted: Sales Agents who know metal working trade—especially metal finishing for territories in eastern and central states, by nationally advertised company with complete line. Write Box 108, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

This Opportunity Section is available for classified advertisements featuring equipment, employment, business opportunities, etc., in the industries devoted to the cleaning, plating, polishing and finishing of metals. For advertising rates and other information address:

PRODUCTS FINISHING
431 MAIN STREET, CINCINNATI, OHIO

FOR SALE

3—Type 101 Production Polishing Machines—in tandem. Complete with polishing wheel 16" x 4 ft. face, and air way buffs. Serial No. 7285-86-87.
1—25 h.p. Motor.
1—Magnetic starter and push button control.
Set 8 foot section Idler Roll supporting guide fixtures.
Excellent condition used less than 6 months.

Full information write
HEDSTROM UNION CO., Fitchburg, Mass.
Purchasing Department

"Duro Acid Proof Materials" is the title of a folder issued by Electro-Chemical Supply & Engineering Co., Paoli, Pa. The folder contains information in the form of engineering data sheets describing various Duro products. Properties and suggested uses of Duro Standard Acid Proof Cement, Duro Triplex Acid Proof Cement, Syntho Acid Proof Cement, Alk-Li-Pruf Cement, and Kemitite are outlined in this fashion. Copy free upon request.

"Kleenaire Fume Separators" is the title of a four-page two-color folder issued by The Udylite Corp., Detroit 11, Mich. The action of Kleenaire Fume Separators in exhausting plating fumes from tanks, separating plating fumes from the air, and returning the purified air to the room is described in detail. Various Kleenaire separator installations are pictured. Specifications of the separators are outlined and applications recommended. Copy free upon request.

"Bonderite 170 for Aluminum" is the title of an eight-page illustrated technical publication issued by the Parker Rust Proof Co., Detroit 11, Mich. The publication describes the application of Bonderite 170, a phosphate coating for aluminum and its alloys. Illustrations show results of corrosion tests and also picture various products being treated by this process. Schematic drawings outline suggested conveyorized and batch type Bonderizing installations. Copy free upon request.

CATALOGS

FOR YOUR LIBRARY

To obtain copies of the catalogs listed here, indicate on the coupon the number of the item in which you are interested and mail as directed.

1. Rack Coating

A four-page bulletin prepared by United Chromium, Inc., 51 E. 42nd St., New York 17, N. Y., describes Unichrome Coating 218.

2. Precious Metal Plating

A 16-page booklet issued by A. Robinson & Son, 131 Canal St., New York 2, N. Y., presents in usable form accepted methods applied in the electroplating of such articles as watch cases, insignia, jewelry, novelties, pen and pencil parts.

3. Buffs

A four-page bulletin published by The Manderscheid Co., Dept. 101, 810 Fulton St., Chicago 7, Ill., illustrates and describes bias type, loose, concentric sewed, radial sewed, spiral sewed, and other buffs.

4. Dust Collectors

Designated as the No. 31, a 24-page catalog illustrative and descriptive of its line of dust collectors and allied equipment for carrying away dust-laden air around grinding, cutting, and polishing wheels is now being distributed by the Torit Manufacturing Co., 314 Walnut St., St. Paul 2, Minnesota.

5. Zinc Anodes

A four-page folder describing "Flat Top" zinc anodes may be obtained from Wagner Bros., 431 Midland Ave., Detroit 3, Michigan.

6. Dulac Clear Lacquer

Technical Data Bulletin 110, describing Dulac Clear Universal Lacquer No. 462 has been prepared by the Maas & Waldstein Co., Newark 4, New Jersey.

7. Backstand Idler

An illustrated leaflet descriptive of the Niederst Backstand Idler for use in performing belt polishing operations using present lathe equipment is now available from the Niederst Co., 3506 S. Michigan Ave., Chicago 15, Illinois.

8. Tumbling

"Precision Tumbling with Alundum Abrasives" is the title of a booklet of interest to finishers of metal or plastic parts which is now being offered by the Norton Co., Worcester 6, Massachusetts.

9. Finishing Systems

Complete details on the entire line of Newcomb-Detroit finishing systems is contained in a catalog prepared by the Newcomb-Detroit Co., 5741 Russell St., Detroit 11, Michigan.

10. Abrasive Belt Machine

Bulletin No. 19 now available from Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich., illustrates and describes the Hammond Abrasive Belt "50," a unit for performing grinding, polishing, deburring, and cleaning-up operations.

11. Organic Coatings
The Liquid Plastics Division, Ferro Enamel Corp., Cleveland 5, Ohio, is issuing a bulletin, "A Review of Product Finishing with Organic Coatings."

12. Spray Finishing Equipment
Catalog No. 97 prepared by the Binks Manufacturing Co., 3114-40 Carroll Ave., Chicago 12, Ill., contains complete data on spray guns, spray booths, air compressors, painting outfits, extractors, respirators, hose, and other products.

13. Conveyor Belts
A reference book presenting illustrations, engineering specifications, design and construction details on belts for the conveying and treatment of industrial products is now being offered by the Cambridge Wire Cloth Co., Dept. H, Cambridge 1, Maryland.

14. Cleaning Machinery
An illustrated folder descriptive of its complete line of machinery for washing, rinsing, and drying metal parts is now being offered by the Cincinnati Cleaning and Finishing Machinery Co., Ironton, Ohio.

15. Metal Degreasing
The Solvents Division of the Electrochemicals Dept. of E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del., has prepared a 10-page booklet of standard practices for the degreasing of metals or other non-porous materials with chlorinated solvents.

16. Abrasive Belts
"A Faster Better Finishing Method," a booklet showing how the 3M wet grinding method is reducing production time and costs in many lines of industry, is now being distributed by the Minnesota Mining & Manufacturing Co., St. Paul 6, Minnesota.

17. Flock
The Behr-Manning Corp., Troy, N. Y., is now offering a color guide and information booklet on rayon precision-cut flock for application to metal, wood, glass, plastic, cloth, or paper.

18. Spar Varnish
Standard Varnish Works, 2600 Richmond Terrace, Staten Island, N. Y., is offering a booklet describing "1000 Spar" Varnish.

19. Spray Booth Coating
A folder detailing application methods and advantages in the use of a strippable plastic spray booth coating is being issued by Ramsell Products, Inc., 712 S. 5th Ave., Maywood, Illinois.

20. Metal Preparation
Bulletin 48-89 descriptive of a pre-paint surface treatment for zinc or cadmium surfaces is available from the Neilson Chemical Co., 6561 Benson St., Detroit 7, Michigan.

21. Organic Finishing
A 12-page technical bulletin outlining basic points to be considered in the planning of a complete organic finishing system has been prepared by Peters-Dalton, Inc., 17908 Ryan Rd., Detroit 12, Mich.

22. Cleaners and Paint Strippers
Six technical bulletins describing paint strippers, cleaners, and phosphate coating materials are being distributed by Chemco Products Co., Inc., 1059 E. 76th St., Chicago 19, Illinois.

23. A.C. Generators
A bulletin describing the construction and operation of Columbia alternating current generators is being issued by the Columbia Electric Manufacturing Co., 4519 Hamilton Ave. N. W., Cleveland 14, Ohio. Construction features and operating characteristics are described and available sizes and ratings listed.

Print plainly in filling out coupon for literature.

PRODUCTS FINISHING
431 Main St., Cincinnati 2, Ohio

I am interested in receiving the following literature reviewed in your October issue.

No...... **No.**..... **No.**..... **No.**..... **No.**.....
(Insert numbers denoting literature you want)

Name ..... **Title**.....
Company .....
Company Address .....
City ..... **State**.....

Index to Advertisements

Abbott Ball Co. 42
Acme Mfg. Co. 97
Advance Paint Co. 45
Allied Finishing Specialties Co. 46, 124
Allied Research Products, Inc. 100
Allwood Lime Co. 136
Alrose Chemical Co. 41
Alsop Engr. Corp. 87
Aluminum Co. of America 43
Alvey-Ferguson Co. 27
American Chemical Paint Co. 37
American-Marietta Co.,
Ferbert-Schorndorfer Div. 6, 7

Baker & Co., Inc. 8
Behr-Manning Corp. 76
Berks Refining Co. 134
Blakeslee & Co., G. S. 66

Cambridge Wire Cloth Co. 127
Carborundum Co. 9
Chemco Products Co., Inc. 96
Cincinnati Cleaning & Finishing Mchry. Co. 63
Codman Co., F. L. & J. C. 91
Columbia Electric Mfg. Co. 50
Cowles Chemical Co. 18

Darco Corp. 107
Davis-K-Products Co. 130
Dellinger Mfg. Co. 121
Despatch Oven Co. 141
Detrex Corp. ..... Fourth Cover
Detro Mfg. & Sales Co., Inc. 88
Dust Suppression & Engr. Co. 113

Eclipse Air Brush Co. 123
Egyptian Lacquer Mfg. Co. 4
Exolon Co. 89

Fuller & Co., W. P. 53
Fuller Brush Co. 85

General Chemical Div.,
Allied Chemical & Dye Corp. 51
General Electric Co., Lamp Div. 31

Hammond Mchry. Builders, Inc. 10, 11
Hanson-Van Winkle-Munning Co. 3
Harding Mfg. Co. 48
Harrison & Co., Inc. 108
Harshaw Chemical Co. 65
Hercules Powder Co. 73
Holland & Sons, Inc., J. 36

Industrial Lubricants Co., Inc. 126
Interchemical Corp., Finishes Div. ..... Second Cover
International Nickel Co., Inc. 15

Jackson Buff Corp. 74, 75
Jensen Specialties, Inc. 47

Keystone Emery Mills 130
Kirk & Blum Mfg. Co. 16

Lacquer & Chemical Corp. 140
Link-Belt Co. 14

Maas & Waldstein Co. 49
MacDermid, Inc. 83
Magnus Chemical Co., Inc. 77
Magnuson Products Corp. 104
Mahon Co., R. C. 54, 55
Mechanical Process Co. 52
Merit Products, Inc. 103
Metalwash Mchry. Co., Inc. 139
Midland Industrial Finishes Co. 95
Minnesota Mining & Mfg. Co. 35, 99
Mitchell-Bradford Chemical Co. 111

National Rack Co., Inc. 134
Naz-Dar Co. 92
Neilson Chemical Co. 13
Newcomb-Detroit Co., Inc. 71
Niederst Co. 34
Norton Co. 2

Oakite Products, Inc. 1
Optimus Equipment Co. 137

Parker Rust Proof Co. 93
Peters-Dalton, Inc. 60, 61
Phelps Dodge Refining Corp. 132
Pittsburgh Plate Glass Co., Brush Div. 109
Production Machine Co. 110

Quinn Co., Nelson J. 101

Ramsell Products, Inc. 59
Randolph Products Co. 17
Ransohoff Inc., N. 79
Rayon Processing Co. of R. I. 129

Sarco Co., Inc. 12
Seymour Mfg. Co. 125
Sherwin-Williams Co., Industrial Div. 38, 39
Siefen Co., J. J. 133
Simonds Abrasive Co. 135
Singleton Co. 84
Solvents Recovery Service, Inc. 142
Standard Electrical Tool Co. 44
Standard Varnish Works ..... Third Cover
Stevens, Inc., Frederic B. 33
Striplastic Co. 143
Sturgis Products Co. 86
Sulphur Products Co. 128

Torit Mfg. Co. 105

Udylite Corp. 29
United Chromium, Inc. 81

Vanott Machine Co. 131
Varnish Products Co. 90

Watson-Standard Co. 57

Young & Bertke Co. 122
Young Brothers Co. 115

Zapon Div., Atlas Powder Co. 67